

Pacific
Salmon
Commission



2011/2012

Twenty Seventh
Annual Report

Pacific Salmon Commission

**Established by Treaty between Canada and
the United States**

March 18, 1985

for the

conservation, management and

optimum production of

Pacific salmon

Twenty Seventh Annual Report 2011/2012

**Vancouver, B.C.
Canada**

March 2014



PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

600 - 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B5
TELEPHONE: (604) 684-8081
FAX: (604) 686-8707

Our File:

Your File:

Letter of Transmittal

In compliance with Article II, Paragraph 14 of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific salmon (the Treaty), it is my pleasure as Executive Secretary of the Pacific Salmon Commission to present my compliments to the Parties and to transmit the Twenty Seventh Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 2011 to March 31, 2012. It reports on the results of the 2011 fishing season and on meetings of the Commission and its subsidiary bodies. Also included are the annual reports of the Northern and Southern Fund Committees, and an independent auditor's report on financial activities of the Commission during the fiscal year April 1, 2011 to March 31, 2012.

Additional details about the Commission's activities and the Treaty are available at www.psc.org.

Sincerely,

John Field
Mr. John Field
Executive Secretary

PACIFIC SALMON COMMISSION

OFFICERS for 2011/2012

Chair	Mr. Phil Anderson
Vice-Chair	Ms. Susan Farlinger

COMMISSIONERS

Canada

Mr. Ron Fowler
Mr. Gerry Kristianson
Mr. Saul Terry
Mr. Russ Jones
Mr. Paul Macgillivray
Dr. Brian E. Riddell

United States

Mr. Ron Allen
Mr. David Bedford
Mr. Larry Rutter
Mr. James E. Bacon
Mr. Roy Elicker
Mr. John Field
Mr. McCoy Oatman

SECRETARIAT STAFF

Executive Secretary
Administrative Officer
Chief Biologist

Mr. Don Kowal
Mr. Ken Medlock
Mr. Mike Lapointe

Contents

CONTENTS	V
INTRODUCTION	1
ACTIVITIES OF THE COMMISSION	5
A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION	6
B. MEETING OF THE COMMISSION AND PANELS	7
C. PACIFIC SALMON COMMISSION ANNUAL MEETING	8
ACTIVITIES OF THE STANDING COMMITTEES	11
A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION	12
B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION	13
C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES	13
ACTIVITIES OF THE PANELS	17
A. FRASER RIVER PANEL	18
B. NORTHERN PANEL	18
C. SOUTHERN PANEL	18
D. TRANSBOUNDARY PANEL	18
REVIEW OF 2011 FISHERIES AND TREATY-RELATED PERFORMANCE	21
A. FRASER RIVER SOCKEYE SALMON	22
B. 2011 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES	25
C. 2011 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON COMMISSION	106
D. UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA	172
REPORTS OF THE JOINT TECHNICAL COMMITTEES	175
A. JOINT CHINOOK TECHNICAL COMMITTEE	176
B. JOINT CHUM TECHNICAL COMMITTEE	186
C. JOINT COHO TECHNICAL COMMITTEE	187
D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE	187
E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE	190
F. JOINT TECHNICAL COMMITTEE ON DATA SHARING	194
G. SELECTIVE FISHERY EVALUATION COMMITTEE	194
H. HABITAT AND RESTORATION TECHNICAL COMMITTEE	197
PUBLICATIONS OF THE PACIFIC SALMON COMMISSION	199
REPORT OF THE AUDITORS FOR 2011/2012	203
APPENDICES	233
APPOINTMENT OF OFFICERS FOR 2011/2012	234
APPROVED BUDGET FY 2012/2013	235
UPDATED TERMS OF REFERENCE FOR THE COMMITTEE ON SCIENTIFIC COOPERATION	236
NORTHERN FUND PROJECTS FOR 2011/2012	238
SOUTHERN FUND PROJECTS FOR 2011/2012	239
PACIFIC SALMON COMMISSION SECRETARIAT STAFF AS OF MARCH 31, 2012	240
MEMBERSHIP LISTS FOR STANDING COMMITTEES, PANELS, JOINT TECHNICAL COMMITTEES AND OTHER APPOINTMENTS AS OF MARCH 31, 2012	241

INTRODUCTION

Since the early 20th century, Canada and the United States have discussed and collaborated on Pacific salmon conservation and management. Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been a particularly important issue over the years. Scientific research identified a number of intercepting fisheries on species and stocks originating from Alaska, British Columbia, Washington, Oregon and Idaho. This research indicated that Alaskan fishers were catching some of the salmon bound for British Columbia, Idaho, Oregon and Washington. Canadian fishers off the West Coast of Vancouver Island were capturing some of the salmon bound for rivers of Washington and Oregon, while fishers in northern British Columbia were intercepting certain fish returning to Alaska, Washington, Oregon and Idaho. U.S. fishers were catching Fraser River salmon as they traveled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Cooperative management of stocks subject to interception became a matter of common concern to Canada and the United States, and governments desired a mechanism to enable each country to reap the benefits of its respective management and enhancement efforts. That mechanism is now provided through the *Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon* (hereafter the "Pacific Salmon Treaty" or "the Treaty"), which entered into force upon the exchange of instruments of ratification by the President of the United States of America and the Prime Minister of Canada on March 18, 1985.

The treaty, *inter alia*, established a) a bilateral fishery management organization known as the Pacific Salmon Commission (the Commission), and b) bilateral fishery management regimes for conservation and harvest sharing of salmon stocks. Each country (Party) retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. The Treaty is intended to enable bilateral conservation and enhancement to prevent overfishing, increase production, and ensure that each country receives benefits equivalent to its own salmon production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The Commission comprises four Commissioners (and alternates) from each country as the principle deliberative body. The Treaty also provides for numerous subsidiary committees, and five geographically oriented panels. The Panels report to the Commission and provide advice on the conservation and management of selected stocks, with certain exceptions as noted below:

Transboundary Panel: addresses stocks originating from the Alsek, Stikine and Taku River systems.

Northern Panel: addresses stocks originating in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia.

Southern Panel: addresses stocks originating in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon.

Fraser River Panel: has special in-season regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.

Yukon River Panel: makes recommendations to authorities in Alaska and the Canadian government concerning the conservation and coordinated management of salmon originating in the Yukon River in Canada, but does not report to the Commission.

The panels review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country. They also provide recommendations to the Commission for development of fishery regimes in accordance with the objectives of the Treaty. These

regimes, once adopted by the Commission and accepted by the Parties, are implemented by the relevant fishery management agencies in each country.

The Parties accord the Fraser River Panel special responsibility for in-season regulation of Fraser River sockeye and pink fisheries of Canada and the United States in southern British Columbia and northern Puget Sound, in an area designated as Fraser River Panel Area Waters. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

With long-term fishery arrangements in place through periodic amendment of the Treaty, the meeting agendas for the Commission have concentrated on implementation that will improve fisheries management and aid the countries' efforts to recover weakened stocks. These provisions include establishment of two bilaterally-managed restoration and enhancement funds, provisions to enhance bilateral cooperation, and improvements to the scientific basis for salmon management.

The Commission generally meets three times annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 2011 to March 31, 2012, the Commission met on three occasions:

1. Commission Fall Meeting
October 18-20, 2011 – Warm Springs, Oregon
2. Post-Season Meeting of the Commission and Panels
January 9-13, 2012 – Portland, Oregon
3. 27th Annual Meeting of the Commission
February 13-17, 2012 – Vancouver, B.C.

This, the Twenty-Seventh Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its Twenty-seventh fiscal year of operation, April 1, 2011 to March 31, 2012.

2

Activities of the Commission

PART I

ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION

October 18-20, 2011, - Warm Springs, Oregon

The Commission met twice in bilateral session during the meeting.

The Commission discussed the status of the Fraser River Chapter (Chapter Four) of Annex IV of the Pacific Salmon Treaty (PST), originally scheduled to expire December 31, 2010. The Government of Canada established the Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River (Cohen Commission) in 2009. In 2010 the PSC agreed to extend existing Chapter provisions through 2012 to allow Canada time to determine if the Cohen Commission's findings would impact the Fraser River process.

Because the Cohen Commission was granted an extension and would not present its final report until June 30, 2012, the Pacific Salmon Commission agreed that Chapter Four of Annex IV of the Pacific Salmon Treaty and accompanying guidance to the Fraser River Panel, originally developed in 2010 and applied in 2011, would be extended to the end of 2013.

Dr. Riddell reported on work done as a follow-up to the bilateral scientific workshop on the decline of Fraser River sockeye held by the Pacific Salmon Commission in 2010. As directed by the workshop steering committee, Fisheries and Oceans Canada developed a substantial inventory of researchers working on relevant projects on ecosystems in the Strait of Georgia and in Puget Sound. A contractor, Dr. Isobel Pearsall, was hired to cross-reference the inventory of projects with the table of workshop recommendations. The workshop steering committee would review the inventory and report back to the Pacific Salmon Commission in January 2012.

Ms. Allison Webb of Fisheries and Oceans Canada provided an update on the external review process initiated by the Commission in February 2011. Over the summer months, the PSC external review steering committee finalized terms of reference and hired a consulting company, Ottawa-based 49 Solutions, to conduct the review. The focus of the review would be on financial and organizational performance.

The contractors would attend the January and February 2012 Commission meetings and interview Commissioners, Panel, and Committee Chairs. 49 Solutions would submit a draft report to the PSC external review steering committee before the final report would be presented to the full Commission in spring 2012.

The United States announced that Dr. David Hankin would serve as Chair of the U.S. Section of the Committee on Scientific Cooperation (CSC) and Mr. Alex Wertheimer would replace Mr. Steven Pennoyer as CSC member.

The Commission discussed the role of the Committee on Scientific Cooperation. In practice the Commission gave specific assignments to the CSC as matters arose. In the 1999 PST Agreement, the Committee's mandate was to advise the Commission on the use of science in the broader sense. The Commission agreed that the CSC chairs and a Commissioner from each Party would work to develop recommendations about how the CSC should operate. That group would report back to the Commission at the January 2012 session.

The Commission discussed ongoing Chinook Technical Committee (CTC) workload problems. The Commission directed the Chinook Interface Group (CIG) to review CTC assignments, priorities, and staffing capacity.

The Commission approved Panel and Committee workplans and adopted instructions to the Panels and Committees.

The Commission accepted the 2011/2012 slate of PSC officers (Appendix A).

B. MEETING OF THE COMMISSION AND PANELS

January 9-13, 2012 – Portland, Oregon

Three sittings were held during the week.

Newly appointed U.S. Commissioners Mr. Phil Anderson and Mr. McCoy Oatman were welcomed to the Commission table.

Mr. Brian Mackenzie and Mr. Anthony Woods of 49 Solutions, the consulting firm hired to carry out the PSC external review, appeared before the Commission. They said that the terms of reference for the review were oriented to examine the Commission's processes, its meetings, and the effectiveness of the Secretariat in supporting the Commission.

The information used to conduct the review would be acquired in two ways. The consultants would observe the meetings of the Commission, Panels, and Committees at the January and February 2012 sessions and they would interview 44 people selected by the Commission. 49 Solutions would present its final report in spring 2012.

The Parties tabled their 2011 post-season fishing reports.

The Commission received a report from Dr. Riddell about steps taken to follow-up on the recommendations of the June 2010 PSC-funded Decline of Fraser Sockeye Workshop. A small group of experts would meet at the end of January 2012 to prepare a summary of the 400-page inventory of people researching the survivorship and productivity of Fraser River sockeye. The summary report would be made available to the Commission at the beginning of February and at the February 2012 meeting the Commission would discuss how to proceed.

Mr. Rutter reported on the work done by the subset of Commissioners charged with determining how the PSC should utilize the Committee on Scientific Cooperation (CSC). The group determined that the Commission would continue to direct the CSC to work on specific topics and the CSC would not serve to provide advice about the PSC's scientific agenda in general. Minor proposed changes to the original CSC terms of reference would be presented to the Commission at the February 2012 session.

The Commission received a report from the Chinook Interface Group (CIG). During the week, the CIG discussed the Chinook Technical Committee (CTC) precautionary management assignment, improvements to the Chinook Model, and the CTC's ISBM report. The CIG also provided guidance to the Chinook Technical Committee about prioritizing the assignments in the CTC work plan.

The Commission received progress reports on work plan tasks from the Transboundary Panel, the Northern Panel, the Fraser River Panel, the Southern Panel, the Finance and Administration Committee, the Habitat and Restoration Technical Committee, the Selective Fisheries Evaluation Committee, the Coded Wire Tagging Implementation Team, and the Sentinel Stocks Committee.

C. PACIFIC SALMON COMMISSION ANNUAL MEETING
February 13-17, 2012 – Vancouver, B.C.

The Commission held four sittings during the week.

Mr. Don Kowal would soon retire from the PSC and the Commission discussed the hiring process for the Executive Secretary position. The application process would close on March 31, 2012. Interviews would be held the third week of May. The Commission would make the final hiring decision based on the search committee's recommendation.

The Commission accepted the Finance and Administration Committee report, including the budget for fiscal year 2012/2013 (Appendix B).

The Commission discussed steps taken to follow-up on the June 2010 PSC Workshop on the causes of the decline in Fraser River sockeye. In January 2012, a group of 20 experts met to review work done to date and to conduct a gap analysis. Meeting participants agreed that there was no need to hold another workshop. There was support for one of the main workshop recommendations, which was to develop a more fully integrated research proposal that would examine factors limiting production of salmon in the Strait of Georgia and further off-shore if necessary.

The Commission agreed to direct a small work group consisting of Dr. Riddell, Mr. Mark Saunders, Mr. Larry Rutter, Mr. Gary Graves, plus Fraser Technical Committee co-chairs and PSC Chief Biologist Mr. Mike Lapointe, to determine what would be involved in developing an integrated program, including who would write the plan and what it would cost.

Dr. Riddell reported that the inventory of existing monitoring and research activities that might help explain variations in Fraser River sockeye returns developed by Dr. Pearsall would be converted into a searchable Access database under the Pacific Salmon Foundation's Strait of Georgia Program. A bibliography consisting of 1817 references about research done in the Strait of Georgia compiled by Dr. Richard Beamish would be added to the database.

The Commission agreed that the inventory of researchers would be housed on the PSC secretariat website so that it would be accessible to the public.

The Commission received a report from the Coded Wire Tag Implementation Team and approved its funding recommendations for 2012.

The Commission received a report from the Sentinel Stocks Committee and approved the Committee's Sentinel Stocks Program 2012 funding recommendations.

The Commission adopted revised terms of reference for the Committee on Scientific Cooperation. (APPENDIX C)

Mr. Brian Mackenzie reported on the status of the PSC external review. 49 Solutions would submit a draft report to the external review steering committee in early March. The Commission agreed to hold a meeting by teleconference in April 2012 to discuss the final PSC External Review report and to determine next steps in the external review process.

The Commission discussed the strategic review prepared by Secretariat staff dated January 2011. In February 2011 the Commission directed the PSC performance review steering committee to examine that review and to identify initiatives that could be implemented that would result in cost savings and

efficiencies before the final 49 Solutions report was tabled. The steering committee recommended that a number of items from the 2011 staff review be implemented for immediate action. The Commission agreed to consider these recommendations when reviewing the 49 Solutions report to determine which recommendations could be implemented from each report.

Dr. Laura Richards, Director of Science for the Pacific Region of Fisheries and Oceans Canada and member of the PSC Committee on Scientific Cooperation, gave a presentation about Infectious Salmon Anemia (ISA) Virus and Pacific salmon. She said that significant testing of samples and validation tests have shown that there are no confirmed findings of ISA in wild B.C. salmon to date. She added that even if there was evidence of the presence of ISA there was no evidence that it was a virulent disease for sockeye. She said that there is agreement that since there was the potential of positive results, that more research is needed. The next steps being taken involved doing more sampling, testing, and the Canadian Food Inspection Agency is planning to do more surveillance. Dr. Richards said that Canada was aware that the United States was very interested in the status of the ISA investigations and officials from the Canadian Food Inspection Agency were in contact with their U.S. counterparts and were keeping them apprised of developments.

Mr. Rutter provided an update on the NOAA-DFO Bilateral Scientific Workshop to Evaluate Effects of Salmon Fisheries on Southern Resident Killer Whales. Three workshop sessions would be held. The first took place in September 2011, the second would be held in March 2012 and the third in September 2012. The Workshop Science Panel, comprised of independent academics, would make recommendations on the state of science surrounding the health of killer whales in relation to the availability of prey as affected by fishing. Any management response would be the responsibility of NOAA Fisheries and Fisheries and Oceans Canada.

The Chinook Interface Group (CIG) reported to the Commission on its activities. CIG considered a memo from the Chinook Technical Committee (CTC) about policy questions embedded in the CTC report on ISBM fisheries. (Report TCCHINOOK (11)-4) CIG members agreed to refer the policy questions back to the National Sections for discussion. The Commission agreed to attach a cover note to the ISBM report that made it clear that the policy questions in the report were under discussion.

The CIG recommended that the Commission move forward on precautionary management by directing the CTC to write a report based on a table of contents prepared by the CTC's precautionary management workgroup. The Commission accepted CIG's recommendation.

Mr. Angus Mackay, Endowment Fund Coordinator, presented the "Annual Report of the Southern Boundary Restoration and Enhancement Fund and the Northern Boundary and Transboundary Rivers". (PART II ACTIVITIES OF THE STANDING COMMITTEES, SECTION C.)

The Commission received progress reports on work plan tasks from the Fraser River Panel, the Southern Panel, the Northern Panel, the Transboundary Panel and the Chinook Technical Committee.

Activities of the Standing Committees

PART II

ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

1. Committee activities

The Committee met on December 15, 2011, January 11-13, 2012, and February 13-14, 2012 and considered a range of financial and administrative issues as summarized below.

FY2012-2013 budget

The Secretariat proposed a FY2012-2013 budget with national contributions of \$1,932,618 per Party and expenditures of \$3,970,005. They further recommended that a subcommittee be formed to discuss mechanisms for analyzing budget changes and priorities in the long-term.

The Committee discussed tightening national budgets in coming years and the potential effects on the Commission's finances. The Committee agreed that any future increases in the Commission budget should be clearly explained in staff proposals, and they would be dealt with each fiscal year.

The Committee recommended a budget revised from the Secretariat proposal, as detailed in Appendix B, with national contributions consistent with FY2011-2012 and recent averages. The Committee noted that FY2011-2012 unspent funds could be carried forward as income for the Secretariat in FY2012-2013 as of April 1, 2012. The Commission approved this budget as recommended. This budget excludes any test fishing programs, which are accounted and financed separately from regular Party contributions.

Capital asset replacement

The Secretariat provided its replacement schedule (dated January 2011) for various Commission capital assets, noting that similar plans from the Parties were not available for comparison.

The Canadian section advised that, if needed, they would be able to loan one of DFO's DIDSON units to the Secretariat's hydroacoustic site at Mission for the 2012 season.

Commission Financial Regulations

The Committee discussed the Financial Regulations regarding transfer of funds from one budget category to another within a fiscal year. The Executive Secretary, under Rule 4, has the authority to transfer up to \$50,000 without further authorization but may transfer higher amounts upon recommendation of the Committee chair and approval of the Commission chair. The Committee discussed the potential need to review and recommend revision to the financial rules. The Committee agreed to revisit this during the October 2012 fall meeting.

It was suggested that the Committee meet again once the new Executive Secretary was hired (summer 2012) to review the Financial Regulations and to discuss the needs of the Committee in the next round of budget preparation.

Performance Review

It was noted that the external performance review of the Commission would be completed in April 2012 and a subcommittee could consider its relevance to the budget process. The Committee agreed to revisit this at the October 2012 fall meeting.

Review of Pension and Severance Liabilities

The Pacific Salmon Commission is a member of the International Fisheries Commissions Pension Society (IFCPS), which inter alia administers a defined benefit plan for participating Canada-based fisheries commission staff members. The Secretariat reported that the Commission's unfunded liability is calculated by the IFCPS actuaries on a triennial basis, the last of which was done effective January 1, 2011. This report sets out the required payments to amortize the liability over a 9 to 15 year period. This amount is then included in the proposed budget (currently CAN 12,000 per month or CAN 144,000 per year).

For the severance pay liability, an accrual is done annually and included in the audited statements of the Commission. This accrual, which varies within and between fiscal years, is included in the budget as an estimate and is adjusted annually to reflect actual payments.

2. Secretariat staffing and Commission membership

A list of Secretariat staff employees as of March 31, 2012 is presented in Appendix F.

An updated membership list for the panels, standing committees, joint technical committees and ad hoc working groups as of March 31, 2012 is presented in Appendix G.

B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

The Standing Committee on Scientific Cooperation did not meet during this meeting cycle; therefore no report was submitted.

C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas and their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with the fund managers, it was appropriate to meet together as a Joint Fund Committee. The Joint Fund Committee met in person once on November 17th, 2011.

Mr. Chris Kautzky of Aon Hewitt opened the meeting by discussing on-going issues with the Fund's two active managers Brandes and LSV. He told the Committee that Aon Hewitt still held LSV at their highest manager rating level and advised no changes. With respect to Brandes, Aon Hewitt had been meeting regularly with the firm over the last year to assess their performance. There was something of a divergence in opinion among Aon Hewitt staff who had attended these meetings. Some said the elements that had made Brandes successful 5 years ago were still there,

while others said sell. The consensus was that there might be room for improvement in certain process areas, for example the in the way information moves from the analysts to the management committees; and, the effectiveness of the firm's approach to risk management. Fund Committee members asked if a possible solution might be to stay with Brandes, but adopt a passive management strategy as the Fund had done with BlackRock and its US equity portfolio. Mr. Kautzky replied that this was an option; however, the recommendation of Aon Hewitt was that active management of global assets can still add value and minimize risk and that their advice to the Fund Committee would be to continue to hold Brandes.

Mr. Kautzky then gave the Fund Committee a progress report on the alternative asset strategy. He said that the investment sub-committee had conducted interviews in June with three US commercial real estate managers and chosen the firm of Invesco. As this was a new investment vehicle for the Fund and because of the Pacific Salmon Commission's unique position as an international organization, legal council had been retained to assist with contract negotiations. These had recently come to a successful conclusion and Mr. Kautzky anticipated the Fund being invested in the first quarter of 2012. In addition, interviews with three commercial real estate managers were due to take place in December.

The Committee then heard presentations from the three investment managers in person. Following the presentations the Committee discussed their next steps.

The Committee felt that the performance of LSV had been acceptable.

Next the Committee considered the performance and outlook for Brandes. While disappointed with their performance over the last four years, the Committee appreciated the stability of the firm's structure, the low turnover in staff, and the consistency of their commitment to the deep value Graham and Dodd investment process. There was some concern that if the world had changed after 2008/09 the Brandes model might be outdated. The consensus was that there was no appetite for rapid change; the Committee would continue to be patient in accordance with Aon Hewitt's advice to "hold"; the Committee were satisfied that Aon Hewitt was doing its due diligence in regularly re-evaluating Brandes and that if at any time the "hold" recommendation were to change to a "sell" recommendation, the Committee would act accordingly.

With respect to BlackRock, the Committee was in agreement that in future, given the passive strategy now adopted with this firm, an annual in-person interview would no longer be necessary and a written report could be submitted.

The last agenda item was a report on the status of the Chinook Sentinel Stocks Program from Sentinel Stocks Committee co-chair Dave Bernard who joined the meeting from Anchorage via conference call. He began by summarizing the financial position of the program and noted that expenditures to date were less than the \$2M per year originally envisioned. He described projects that had met or nearly met their primary objectives on the Fraser (South Thompson and Chilko), Nass, Skeena and Oregon Coast. He also described projects that had yet to achieve a spawning escapement estimate with the desired accuracy and precision for various reasons. These were largely concentrated in Puget Sound and the West Coast of Vancouver Island. He held out the hope that the two-sample study, Coweeman River method, might prove effective in Puget Sound and possibly on the WCVI rivers. He also spoke of a genetic stock identification/coded wire tag approach as possible for WCVI. Some Fund Committee members wondered if either alternative

would provide a result more insightful than the current state of knowledge, being that there are very few fish in these systems. While satisfied with the successful results achieved so far by the SSP, the Fund Committee members expressed their concern about Puget Sound and WCVI and questioned the likelihood of these two regions achieving the spawning escapement estimates they sought on time & within the budget allotted. In the meantime, the volume of proposals received in response to the 2011 Call for Proposals for projects starting in 2012 amplified the Committee member's awareness of the impact of this fourth annual SSP disbursement on the Funds annual grant awarding capability.

Northern Fund Committee Meetings

The Northern Fund Committee met three times during 2011.

April 28th, 2011

- Fund performance and Q4 2010 review.
- Alternative asset classes update and discussion.
- The potential for funding in 2011.
- Status of on-going projects in 2011.
- Spending Policy review.
- Target spending amounts based on the most recent financial information.
- Special projects worth considering if a general call be deemed unfeasible.
- Habitat Restoration Technical Committee Co-Chairs Presentation.

September 20th, 2011

- First round selection of project concepts to be invited to proceed to stage two.
- On-going project status and review.

November 17th, 2011

- Financial position and date of record.
- Status of long-term on-going projects.

Southern Fund Committee Meetings

The Southern Fund Committee met four times during 2011.

February 14th, 2011

- Final review and approval of on-going and new projects for 2011.
- Review and discussion of the Mission mid-channel/Qualark DIDSON project.

April 14th, 2011

- Fund performance and Q4 2010 review.
- Alternative asset classes update and discussion.
- Habitat Restoration Technical Committee Co-Chairs Presentation.
- Outlook for 2012. Potential for a call for Proposals.

September 15th, 2011

- First round selection of project concepts to be invited to proceed to stage two.
- On-going project status and review.

December 13th, 2011

- Analysis of third party proposal review processes.
- Second round selection of detailed proposals for funding in 2012.

Investment Sub-Committee Meetings

An Investment Sub-Committee of the Joint Northern and Southern Fund Committees met twice during 2011. Members were David Bedford, Frank Quinn (June only), Larry Peck and Don Radford.

June 1st, 2011

- Real estate manager search and interview process.
- Managers interviewed were Invesco (selected), Prudential and UBS.

December 2nd, 2011

- Listed infrastructure manager search and interview process.
- Managers interviewed were Brookfield, Lazard and RARE (selected).

A list of all 2011/12 Northern and Southern Fund projects can be found in Appendices D and E.

Activities of the Panels

PART III

ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

The Fraser River Panel completed the 2011 fishery management plan for Fraser River sockeye and pink salmon in Panel Area waters on June 16, 2011. The Panel carried out its in-season fishery management responsibilities as per Annex IV, Chapter 4 and the February 17, 2011 Commission Guidance to the Fraser River Panel. Commission staff conducted its regular in-season assessment programs and reported results to the Panel.

The Panel met in bilateral session during the January and February 2012 meetings of the Commission to review the results of the 2011 fishing season, to receive reports from Canada on spawning escapements and to discuss issues of concern for the 2012 fishing season. Commission staff reviewed concerns regarding the likely continued early upstream migration behavior of Late-run sockeye and provided the Panel with policy options for 2012.

B. NORTHERN PANEL

No report was received by the time of publication.

C. SOUTHERN PANEL

At the February 2012 Annual Meeting, the Southern Panel heard updates from the Coho and Chum Technical Committees and reviewed the 2010 Coho Annual Summary.

The Panel received updates about the Coho Assessment Framework as well as a preview of an analysis of coho CWT levels.

The Chum Technical Committee and the Coho Technical Committee developed a list of possible Southern Endowment Fund (SEF) projects, which was endorsed by the Southern Panel. The Panel Chairs drafted a letter to the SEF Committee detailing priorities for SEF proposals from a Southern Panel perspective. There was some discussion about the role of the Southern Panel in evaluating and encouraging more holistic ecosystem-based management proposals. The Chairs feel that while understanding proposals and management from a broad perspective is desirable the Panel would be better served to focus on meeting PST obligations and deliverables.

The Panel reviewed the coho chapter deliverables and obligations.

D. TRANSBOUNDARY PANEL

The Transboundary Panel met extensively in bilateral session during the January and February 2012 meetings of the Commission. During January bilateral sessions, the Panel received several reports by staff of the Alaska Department of Fish and Game and the Canadian Department of Fisheries and Oceans concerning fisheries, stock assessments and joint enhancement activities that took place in both countries in 2011. During the February bilateral meetings, Panel discussions centered on details concerning

overage/underage, escapement goals for Taku coho and Alsek sockeye and Chinook, and the U.S. Stikine subsistence fishery. The Panel took actions regarding Taku and Stikine sockeye enhancement planning documents.

Review of 2011 Fisheries and Treaty-Related Performance

PART IV

REVIEW OF 2011 FISHERIES AND TREATY-RELATED PERFORMANCE

The following review has been drawn from a number of reports prepared by Commission staff, joint technical committees, and domestic agencies for presentation to the Commission. Source documents are referenced for each part of this review. All figures are preliminary and will be updated in future reports as more complete tabulations become available.

A. FRASER RIVER SOCKEYE SALMON

Pre-season Planning

1. Pre-season expectations were for a median run size (p50 level) of 3,177,000 Fraser River sockeye salmon based on an assumption that productivity had remained similar to recent years, and 17,495,000 Fraser River pink salmon.
2. Pre-season expectations of migration parameters included a 32% diversion rate for Fraser River sockeye through Johnstone Strait and a 59% diversion rate for Fraser River pink salmon. Expected Area 20 50% migration dates were June 29 for Early Stuart, July 31 for Early Summer, August 7 for Summer, August 11 for Late-run sockeye and August 25 for pink salmon.
3. Pre-season spawning escapement goals were 17,000 Early Stuart, 181,000 Early Summer, 600,000 Summer and 483,000 Late-run (including Harrison and Birkenhead) sockeye for a total of 1,281,000 sockeye spawners and 6,000,000 pink spawners. The goals for each sockeye management group were established by applying Canada's Spawning Escapement Plan to the forecasted run size.
4. Management Adjustments (MAs) of about 21,000 Early Stuart fish and 38,000 Early Summer fish were added to the spawning escapement targets to increase the likelihood of achieving the targets. These MAs were based on relationships between river conditions (discharge and temperature) and historical differences between lower and upriver escapement estimates.
5. For Late-run sockeye, the Panel assumed a continuation of the early upstream migration behaviour and associated high mortality that has occurred since 1996. The Panel adopted a pMA of 0.69 (equivalent to an MA of 333,000 sockeye) for pre-season planning, based on the median of the three most recent years of the current cycle line (i.e., 1999, 2003, 2007). In 2003 (the year with the median pMA), the upstream timing of the Late-run migration at Mission was August 27.
6. The projected Total Allowable Catch (TAC) of Fraser River sockeye salmon based on the median forecasted abundances and agreed deductions was 1,095,000 sockeye, of which 16.5% (180,600 sockeye) were allocated to the United States (U.S.). The projected TAC for pink salmon was 11,485,000 of which 25.7% (2,952,000 pinks) were allocated to the U.S.
7. Pre-season model runs indicated it was unlikely the Summer-run TAC could be fully harvested due to fisheries constraints required to achieve spawning escapement targets for co-migrating Early Summer and Late-run stocks. The model runs also indicated that the pink TAC was unlikely to be achieved by either country due to fisheries constraints required to achieve Late-run sockeye salmon escapement targets.
8. The Panel adopted the Management Plan Principles and Constraints, Guidelines to Address Late-run Concerns and the 2011 Regulations.

In-Season Management Considerations

9. Marine migration timing was a few days (3-5 days) later than pre-season expectations for all sockeye management groups except Harrison, which was as expected. The migration of Fraser pink salmon was 2 days later than expected.
10. The overall Johnstone Strait diversion rate was 62% for sockeye and 44% for pink salmon, compared to pre-season forecasts of 32% and 59%, respectively.
11. Returns of both sockeye and pink salmon exceeded the median pre-season forecasts. Harrison sockeye demonstrated the most substantial deviation, with a return abundance that was almost 4 times the median pre-season forecast (1,383,000 fish compared to 372,000 fish forecasted pre-season).
12. Fraser River discharge remained well above historical averages for the duration of the season while river temperatures remained below average until late August. As a result of the higher than expected discharge levels, pre-season pMA values for Early Stuart and Early Summer groups were replaced in-season with higher values. An in-season Late-run MA approach was adopted in August that involved a separate, fixed pMA for Harrison and the use of an MA prediction model for non-Harrison Late-run stocks based on migration timing. The in-season pMA for the non-Harrison Late run decreased from the pre-season value because its upstream migration timing was later than expected.

Run Size, Catch and Escapement

13. Returns of adult Fraser sockeye totalled 4,920,000 fish, about three times the brood year abundance of 1,510,000 fish in 2007. Divided into management groups, adult returns totalled 25,000 Early Stuart, 494,000 Early Summer, 2,015,000 Summer, 1,383,000 Harrison and 1,003,000 Late-run sockeye. This return of Early Stuart sockeye was very poor in a historical context, in contrast to the return of Harrison sockeye which was very good. Returns of the remaining management groups were similar in magnitude to recent cycle years.
14. Catches of Fraser River sockeye salmon in all fisheries totalled 1,758,000 fish, including 1,439,000 fish caught by Canada, 279,000 fish caught by the U.S. and 40,000 fish caught by test fisheries. Most of the Canadian catch occurred in First Nations fisheries (931,000 fish), followed by commercial (368,000 fish) and recreational (102,000 fish) fisheries. In Washington, commercial catches totalled 266,000 Fraser sockeye, mostly caught in Treaty Indian fisheries (181,000 fish). Fisheries in Alaska harvested almost no Fraser sockeye. The overall harvest rate was 36% of the run, which is within the range observed since the mid-1990s.
15. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totalled 2,580,000 adult sockeye. This was about 2½ times the brood year escapement of 887,000 adults and the second highest escapement for this cycle on record. By management group and for this cycle line, spawning escapements in 2011 were the lowest to the Early Stuart system since at least 1939, highest Early Summer escapement since 1991, similar Summer-run escapement as recent years, highest Harrison escapement on record and similar Late-run escapement as in recent years. There were 1,165,000 effective female spawners in the Fraser watershed, representing an overall spawning success of 81%.
16. The in-season run-size estimate of 18,300,000 Fraser River pink salmon was revised post-season to 20,645,000 fish, making it 13% larger than forecasted and the 4th largest Fraser River pink salmon run since at least 1959 when records began. Catches totalled 7,857,000 fish, with 4,927,000 caught by Canada, 2,917,000 by the U.S. and 13,000 in test fisheries. This catch represents an exploitation rate of 38%, which is the largest since 1997.

17. Between 2003-2007, the run size of Fraser River pink salmon was the adopted in-season estimate while spawner abundance was calculated by subtracting total catch from this run size. Since 2009, post-season estimates of pink salmon passage have been obtained through the hydroacoustics system at Mission. In 2011, the run size of Fraser River pink salmon was calculated by adding the total catch of pink salmon below Mission (6,943,000 fish) to the Mission passage estimate (13,702,000 fish), while the spawner abundance (12,788,000 fish) was calculated by subtracting total catch from the run size.

Achievement of Objectives

18. In order of descending priority, the goals of the Panel are to achieve the targets for spawning escapement, international sharing of the TAC and domestic catch allocation.
19. In-season management decisions are based on targets for spawning escapement, which are represented in-season by potential spawning escapement targets (i.e., spawning escapement targets plus MAs). In-season estimates of potential escapement (i.e., Mission escapement minus all catch above Mission) were close to the target for Early Stuart sockeye (8% under), and higher than the targets for Early Summer (18% over), Summer (24% over), Harrison (46% over) and Late-run (40% over) sockeye.
20. Spawning ground estimates of Fraser sockeye abundance totalled 2,580,000 adults, which is 30% above the post-season target. Spawner abundance was severely below the target for Early Stuart sockeye (97% under), but exceeded the targets for Early Summer (16% over), Summer (30% over), Harrison (46% over) and Late-run management groups (23% over). More than ninety percent of the Early Stuart run was protected from harvest. Thus the poor result on the spawning grounds was likely a consequence of elevated levels of en route mortality due to the very high discharge levels in the Fraser River during the Early Stuart migration period.
21. The TAC (Total Allowable Catch) of Fraser sockeye was 2,078,000 fish, based on the calculation method set out in Annex IV, Chapter 4 of the Pacific Salmon Treaty and the February 17, 2011 Commission Guidance. The Washington catch of 279,000 Fraser sockeye was 64,000 fish less than their 16.5% share. Similarly, the total Canadian catch of 1,405,000 Fraser sockeye (excluding the ESSR catch of 34,000 Weaver sockeye) was 730,000 fish less than their in-season catch goal (83.5% of TAC + 400,000 fish AFE). In these calculations, the TAC is fixed on the date that Panel control of the last U.S. Panel Area was relinquished (October 8 in 2011), while catches are post-season estimates.
22. In terms of domestic allocation objectives for Fraser sockeye, Treaty Indian fishers were 38,000 fish under and All Citizen fishers were 26,000 fish under their shares of the U.S. TAC. With respect to catch allocation within Canada's commercial fleet, Area B purse seiners were 81,000 fish under, Area D gillnets were 20,000 fish over, Area E gillnets were 67,000 fish over and Area H trollers were 5,000 under their allocations.
23. The spawning escapement target for Fraser pink salmon was exceeded by 6,788,000 fish, largely because the catch of Fraser pink salmon was constrained by conservation measures to protect Late-run sockeye. The U.S. catch was 241,000 fish less than their 25.7% share of the international TAC and the Canadian catch was 4,202,000 fish less than their catch goal.
24. Regarding domestic allocation objectives for Fraser River pink salmon, Treaty Indian and All Citizen fishers were respectively 161,000 and 80,000 fish under their shares of the U.S. TAC. In Canada, Area B purse seiners were 1,191,000 fish over, Area D gillnets were 365,000 fish under, Area E gillnets were 314,000 under, Area G trollers were 244,000 fish under and Area H trollers were 267,000 fish under their respective allocations within the commercial catch.

25. By-catches of non-Fraser sockeye and pink salmon in commercial net fisheries regulated by the Fraser River Panel totalled 470 sockeye and 748,000 pink salmon. Catches of other Fraser and non-Fraser salmon species included 11,400 chinook, 4,000 coho, 500 chum and 10 steelhead.

Allocation Status

There are no paybacks of Fraser River sockeye or pink salmon to carry forward to 2012.

B. 2011 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Introduction

The chapters in Annex IV of the Pacific Salmon Treaty outline the joint conservation and harvest sharing arrangements between Canada and the U.S. for key stocks and fisheries subject to the Treaty. On December 23, 2008, Canada and the U.S. ratified new provisions for five chapters under Annex IV of the Pacific Salmon Treaty. These new chapters came into effect on January 1, 2009. Chapter 4, which covers Fraser River sockeye and pink salmon, was renewed and ratified on December 21, 2010 and came into force on January 1, 2011. All management regimes under Annex IV continue to be implemented by Fisheries and Oceans Canada and U.S. agencies for the 2011 season.

The catches reported below provide the best information available to date, and may change once all catch information for 2011 has been reviewed. The catches are based on in-season estimates (hailed statistics), on-grounds counts by Fisheries and Oceans Canada management staff and independent observers, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), and creel surveys, logbooks and observers (sport and commercial).

Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species, and where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the Pacific Salmon Treaty; domestic catch allocations have been excluded. Appendix 1 summarizes 1995-2011 catches in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

Canada developed a fishing plan for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1, Paragraph 3 of the Pacific Salmon Treaty, including the new arrangements agreed to on January 17, 2008 for the 2009 to 2018 period. Accordingly, the 2011 management plan was designed to meet agreed escapement targets and the following harvest objectives: to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon in existing fisheries; to allow additional harvesting opportunities in terminal areas for enhanced sockeye that were surplus to spawning requirements; to harvest up to 5,000 coho salmon in a directed coho fishery; and, to harvest approximately 1,400 large chinook salmon in a test fishery, conducted by the commercial fleet. Because the preseason run size estimate of 30,000 chinook exceeded the PST agreed upon preseason threshold run size of 28,100 large chinook, both countries were permitted to engage in a directed net fishery. The U.S. elected not to prosecute a directed net fishery due to the minor allowable catch of only

190 fish. Canada, however, proceeded with directed net fishery with an allowable catch of 1,700 chinook salmon.

The 2011 season opened on May 8, 2011, statistical week 20 (SW20), and ended September 5, (SW37). From statistical week 23 (SW20) through till statistical week 25 (SW25) the commercial fishery was closed. However, the commercial fleet continued to fish under the auspice of a test fishery with a catch quota of approximately 900 large chinook. This action was taken as a result of the in-season chinook run size estimate of less than 24,500 fish (threshold number used to trigger a directed chinook fishery). Commercial gear consisted of one 135-metre (443 ft) gill net per licence holder. The maximum mesh size allowed was 204 mm (8") through June 18th after which time the maximum mesh size was restricted to 140 mm (5.5"). Only one gill net was permitted throughout the course of the commercial fishery.

The lower Stikine commercial fishing grounds covered the area from the international border upstream to near the confluence of the Porcupine and Stikine rivers and also included the lower 10 km (6 mi.) of the Iskut River.

In the upper Stikine commercial fishery, which is located upstream from the Chutine River, fishing periods generally mirrored those in the lower Stikine commercial fishery, but lagged by one week. Fishers were permitted one net. Effort was low throughout the season. Again in 2011, the commercial fishing area was extended upstream to the mouth of the Tuya River. This action was taken in order to provide for a terminal fishing opportunity on Tuya River bound sockeye, specifically at sites located upstream of the Tahltan River. For the fourth consecutive year no commercial fishing activity occurred at this site. The Tuya run, which consists entirely of sockeye produced from the Canada-U.S. Stikine enhancement program, has no spawning escapement requirement since these fish cannot return to Tuya Lake due to several velocity barriers located in the lower reaches of the Tuya River. Tuya sockeye are released into Tuya Lake as young of the year juveniles.

The First Nation fishery located near the community of Telegraph Creek, B.C. was active from late May to mid-August. There were no time or gear restrictions imposed on this fishery.

Most of the chinook sport fishing activity in the Stikine River watershed occurs in the lower reaches and at the mouth of the Tahltan River. Additional activity occurs less intensively in the Iskut River and other areas within the Stikine River drainage. Sport fishing activity commenced in late June and peaked in mid-July. Fishing effort and catch was relatively low.

Chinook salmon

The pre-season forecast of Stikine chinook salmon, as provided by the Canada/U.S. Technical Committee for the Transboundary Rivers (TCTR), was for a below average terminal run size of 30,000 large chinook salmon, i.e. fish with a mid-eye to fork length >659mm (~26") or a fork length of >734mm (~29"). For comparison, the previous 9-year (2002-2010) average terminal run size was approximately 48,100 large chinook salmon.

The total combined gill net catch of chinook salmon in the First Nation and commercial fisheries included 2,283 large chinook and 1,165 jacks compared to 2001-2010 averages of 6,297 large chinook and 1,165 jacks. The 2011 sport fishery yielded a total catch of 53 large chinook.

In-season management was influenced significantly by run size projections derived from the Stikine Chinook Management Model (SCMM), a joint Canada-U.S. mark-recapture program, and other stock assessment tools such as the relationship between the commercial fishery CPUE and run size from 2005-2010. Harvest rate assessments by week were also used concurrently with the above-mentioned in-season

run size estimation techniques. In-season estimates based on the average of the mark-capture and model estimates were calculated post SW22. In-season terminal run size projections ranged from 18,300 fish in SW23 to 22,700 fish in SW25. According to the in-season projections, the TAC for Canada remained at the base level catch of 2,300 fish, plus 912 fish allocated under a test fishing regime. The final post season run size was 20,600 large chinook salmon.

Although a directed commercial chinook fishery was prosecuted at the outset of the season, the low in-season run size estimate generated after three weeks of fishing resulted in the fleet converting to a test fishing regime. A test fishery was required to provide stock assessment personnel with the tools to determine weekly run sizes by both test fish CPUE and the ratio of spaghetti tags recovered in the fishery (m-r project). Canada endeavoured to honour Annex IV, Chapter 1, Paragraph 3(a)(3)(vi) which identifies the will of both Parties to partition the chinook harvest (Canada's base level catch of 2,300 and 1,400 large chinook provided by a test fishery) over the season through weekly fishery openings based on weekly guideline harvests. These guidelines were based on historical run timing data. Overall, catches were below the weekly guideline harvests for the duration of the fishery. The first week of the targeted sockeye fishery, which commenced in SW26, had a mesh size restriction of 140 mm (~5.5"); this action was aimed at protecting a weak run of large chinook salmon while providing a fishing opportunity on the early component of the sockeye return.

The preliminary post-season estimate of the terminal run was 20,557 large chinook salmon, including an in river run size based on mark-recapture data of 17,652 large Chinook and a total U.S. catch estimate of 2,905 large chinook. Accounting for the total Canadian catch of 3,183 large chinook salmon (includes commercial, First Nation, sport and test catches), the total system-wide spawning escapement is estimated to be approximately 14,469 large chinook salmon. This escapement estimate is 50% below the 2002-2010 average of 29,200 large chinook and below both the target S_{MSY} escapement goal of 17,400 large chinook salmon, but just within the escapement goal range of 14,000 to 28,000 large chinook salmon. A run size of 20,557 large chinook translates into an Allowable Harvest in directed commercial fisheries of zero(0) fish, but sufficient for both countries Canada and the U.S. to harvest their base level catch and, for Canada, the test fish allocation.

The 2011 chinook salmon escapement enumerated at the Little Tahltan weir included 1,753 large fish and 194 jack chinook salmon. The escapement of large chinook salmon in the Little Tahltan River was 30% of the recent 10 year average of 5,788 fish and 53% of the point (S_{MSY}) estimate of 3,300 spawners; it was also below the escapement goal range of 2,700-5,300 large chinook. The Little Tahltan River escapement of large chinook represented approximately 12% of the estimated total Stikine River escapement compared to an average contribution of approximately 16% (2001-2010).

Escapement counts in Verrett Creek (a tributary to the Iskut River) were characterized as moderate, as reported by the carcass pitch crew stationed at the creek from August 4-11. A relatively strong return of chinook salmon to Shakes Creek (near Telegraph Creek) was reported by residents living at the creek mouth.

Stikine River chinook run timing to the lower Stikine commercial fishing and timing to the spawning grounds appeared to be normal.

In addition to the mark-recapture study, the Little Tahltan weir project, and aerial surveys; genetic samples were collected on a weekly basis from Chinook caught in the U.S. District 108 fishery and from weekly catches taken in the Canadian commercial fishery. This data will be used to assess run timing of Stikine stocks in District 108 and the lower Stikine commercial fishery.

Sockeye Salmon

The pre-season forecast for Stikine sockeye salmon, as provided by the TCTR, was for a terminal run size¹ of 183,000 fish including: 90,000 Tahltan Lake origin sockeye salmon (62,500 wild and 27,500 planted); 43,100 planted Tuya Lake sockeye; and 51,600 non-Tahltan wild sockeye salmon. This outlook constituted a below average run; for comparison, the previous 10-year average (2001-2010) terminal run size was approximately 198,200 fish.

Preliminary combined catches from the Canadian commercial and First Nation (food, social, ceremonial (FSC)) gill net fisheries in the Stikine River totalled 55,619 sockeye in 2011, which was above the 2001-2010 average of 53,881 fish. The lower Stikine commercial fishery harvested 47,758 sockeye, while the upper Stikine commercial and First Nation fisheries harvested a total of 972 and 6,880 sockeye, respectively. The preliminary estimate of the total contribution of sockeye salmon from the Canada/U.S. Stikine sockeye enhancement (i.e. the fry-planting program) to the combined Canadian First Nation and commercial catches was 22,569 fish, or 40% of the catch.

In addition to these catches, 2,285 sockeye salmon were taken in the traditional stock assessment test fishery located near the international border. For the fourth consecutive year, a test fishery designed to target Tuya-bound sockeye operated in the mainstem Stikine River upstream of the mouth of the Tahltan River and succeeded in harvesting 2,978 sockeye salmon.

A total of 34,558 sockeye salmon was counted through the Tahltan Lake weir in 2011, 12% above the 2001-2010 average of 30,760 fish. The 2011 count was above the escapement goal range of 18,000 to 30,000 fish. An estimated 9,100 fish (26%) originated from the fry-planting program, which was below the 38% contribution observed in smolts leaving the lake in 2008, the principal smolt year contributing to the 2011 return. A total of 340 sockeye salmon was sacrificed at the weir for stock composition analysis. In addition, 4,559 sockeye salmon were collected for broodstock, resulting in a spawning escapement of 29,689 sockeye salmon in Tahltan Lake.

The bulk of Tahltan Lake sockeye entered the lake approximately 7-10 days earlier than normal; the third earliest run timing since 1977. Early run timing of this stock was not apparent in the lower river commercial fishery. Like 2010, the near record low Stikine River flows registered during the sockeye migration period likely contributed to an accelerated in-river migration rate resulting in these fish transiting the in-river commercial fishing grounds faster than normal. The total estimated run size of 102,900 Tahltan Lake sockeye was approximately 14% above preseason expectation of 90,000 fish.

The spawning escapements for the non-Tahltan and the Tuya stock groups are calculated using stock ID, test fishery and in-river commercial catch and effort data. The average of the test fishery and the commercial fishery catch-per-unit of effort (CPUE), which operated over the full duration of the run, were used as the principal tool in assessing the spawning ground escapements of non-Tahltan Lake and the Tuya sockeye stock groupings. Based on the run reconstructions generated from the test and commercial fishery CPUE, the preliminary escapement estimates for 2011 were 33,651 non-Tahltan and 14,196 Tuya sockeye salmon. The non-Tahltan spawning escapement estimate was within the escapement goal range of 20,000 to 40,000 and was 12% above the mid-point escapement goal of 30,000 sockeye. The 2011 escapement was 5% above the recent 10 year average of 31,967 fish. No mainstem sockeye aerial surveys were conducted in 2011. The estimated escapement of 14,196 Tuya Lake sockeye was approximately 57% above the recent 10 year average of 9,016 fish. These fish do not contribute to the

¹ Terminal run excludes U.S. interceptions that occur outside Districts 108 and 106.

natural production of Stikine River sockeye salmon due to migration barriers that obstruct entry to their nursery lake and potential spawning gravels.

Based on the in-river run reconstruction of the Tahltan Lake run expanded by run timing and stock ID data in the lower river and estimated harvests of Stikine sockeye in U.S. terminal gill net fisheries, the preliminary post-season estimate of the terminal sockeye run size is approximately 214,900 fish. This estimate includes 102,900 Tahltan Lake sockeye, 46,500 Tuya Lake sockeye, and 65,600 sockeye of the non-Tahltan stock aggregate. A Stikine run size of this magnitude is above the 2001-2010 average terminal run size of 195,300 sockeye salmon and is approximately 17% above the preseason forecast of 183,000 fish.

Similar to 2008-2010, Canada relied more heavily on other in-season abundance estimates than those derived from the Stikine sockeye management model (SMM), which was updated and refined by the TCTR prior to the season. The SMM was used exclusively in SW27 by Canada and was used in concert with other in-river assessment estimates from SW28 through SW33. It was felt that the model was over-estimating both the Tahltan Lake and mainstem sockeye run sizes. As a result, most of the in-season run projections used in management of the Canadian fisheries were based on the average of the SMM and run reconstruction analyses or the average of the SMM model and an in-river regression model as the season progressed. The run size projections ranged from 158,200 fish in SW28 to 203,900 fish in SW30. The final in-season run size estimate was 203,900 fish, based on the run reconstruction approach, while the final estimate based solely on the SMM was 160,600 fish. The preliminary post-season estimate was 214,900 with a Canadian allowable harvest of 73,700 fish. The actual catch was 55,800 fish, 24% below the allowable harvest.

Coho Salmon

For the third consecutive year, several boats remained in the fishery to harvest coho salmon resulting in a total catch of 5,718 coho salmon. A total catch of 4,703 coho salmon was taken during the targeted coho fishery from SW35-39, well above the recent 10 year average catch of 1,485 fish.

The cumulative weekly CPUE index of 4.6 observed in the coho test fishery was 24% below the recent 10 year average cumulative CPUE of 6.1. The test fishery, however, was impaired by unusually frequent flooding events that occurred during the course of the project. Aerial surveys of six index spawning sites follow suit with a combined count of 2,542 fish, approximately 35% below the recent 10 year average of 3,910 fish.

Joint Sockeye Enhancement

Joint Canada/U.S. enhancement activities continued with approximately 6.48 million sockeye eggs collected at Tahltan Lake in the fall of 2011, meeting the target of 6.0 million. The ability to reach the egg take goal in 2011 was largely due to the changes in methodology and additional resources that were utilized. Expanding on the success observed in 2009 with the short term holding of unripe female brood stock, it was decided that all female sockeye captured during brood stock collection activities using traditional capture methodology (beach seining of the primary spawning site) would be held until ripe and then spawned. In past years, only ripe fish were held for spawning the following day. Again in 2011, an additional two person crew was used to access secondary spawning sites that had not been utilized in the past. Brood stock from the secondary spawning sites were collected using rod and reel technology. Through the additional efforts in 2011, 58% of the total females spawned were from short term holding and 15% were collected from the secondary sites. Without the additional efforts undertaken in 2011, it is estimated that less than 4.0 million eggs would have been collected. The last day of brood stock collection occurred on September 18 and the final egg take was completed on the September 20. This was the earliest completion date since the start of the program in 1989.

Approximately 1.23 million fry were out-planted into Tahltan Lake in late May of 2011. The fry originated from the 2010 egg-take and were mass-marked at the Snettisham hatchery with thermally induced otolith marks. The balance of 1.24 million fry originating from the 2010 Tahltan Lake egg take was released into Tuya Lake in mid-June of 2011. This group also had a unique, thermally induced otolith mark. Green egg to released fry survival was 43.6% for the eggs designated for Tuya Lake and 39.9% for those designated for Tahltan Lake. A total of 0.92 million fry destined for Tuya Lake and 1.2 million fry destined for Tahltan Lake held at the Snettisham hatchery was destroyed due to an outbreak of Infectious Hematopoietic Necrosis Virus (IHNV). Although the U.S./Canada enhancement program has been subject to IHNV outbreaks in its history, the loss of fry in 2011 was by far the worst outbreak of the virus.

Approximately 1.63 million sockeye salmon smolts were estimated to have emigrated from Tahltan Lake in 2011, slightly above the 2001-2010 average of approximately 1.52 million smolts. The contribution of hatchery origin fish was approximately 0.65 million smolts representing approximately 40% of the emigration. Both wild and enhanced sockeye smolt survivals were average.

Although the Stikine enhancement program has been successful in producing significant numbers of sockeye salmon, the inability to harvest these fish in terminal areas continues to be a challenge. Returning adults from the Tuya Lake out-plants unsuccessfully attempt to ascend the impassable barriers in the lower reaches of the Tuya River until they either perish or back out of the system. Some of these drop outs end up in nets fished in the Telegraph Creek area raising concerns over poor quality, injured and battered up fish. Others stray² into Stikine River tributaries raising concerns over potential impacts on wild salmon stocks.

Various attempts have been made to date to address these concerns many of which were made possible by support from the Northern Fund. Fishing with gill nets and dip nets has occurred at various sites in the Tuya River with mixed results. To improve fish capture in the lower Tuya River, a fishway/trapping apparatus was designed and constructed in Vancouver during the spring of 2006 and transported to Whitehorse. However, full operation of the apparatus was cancelled because of a major rock slide at the Tuya River fishing site that occurred sometime in June 2006. The rockslide rendered the fishing site, which the fish trap was designed for, unusable due to changes in river hydrology and unsafe working conditions. In 2007, additional rock slide activity occurred in the lower reaches of the Tuya River. A steering committee, consisting of Canadian and U.S. engineers and other technical advisors, visited the site in August 2007 to re-assess the conditions and to consider other options. The committee decided to proceed the following year with plans to strategically blast the rock obstruction at the location of the 2006 rock slide to provide fish passage to a potentially favourable harvest site located approximately 800 metres (1/2 mi.) further upstream. In the late fall of 2008, a blasting crew succeeded in removing approximately 100 m³ (~130 cubic yards) of rock from the blockage. A visual and test fish assessment conducted in late July 2009 and 2010 at locations below and above the blast site indicated that the majority of the fish, including chinook salmon, succeeded in ascending the river to points above the rock slide site. The committee plans to contract an engineering firm to design a fish harvest structure for the new site. The firm will provide both design detail and cost estimates for the structure as well as the routing and costs of an access trail to the site. The initial road survey was conducted in May 2009, followed by a detailed professional survey in August 2010. Work continues on the design and cost estimates of both an access road and a fish trap in 2011.

² Straying of Tuya sockeye has been confirmed using radio telemetry and sampling for thermal marks. In a report completed in February 2006, funded by the Northern Fund, which investigated potential impacts and risks of the straying of enhanced Tuya sockeye salmon, the authors concluded that "...given the results of the literature review and the data collected to date in the Stikine River, the probability of genetic risk of Tuya River blocked fish appears to be extremely low. However, it is prudent to suppose, that given a long enough period of time and a large enough number of fish, that some successful straying and interaction of Tuya River fall back fish could take place".

For the fourth consecutive year, an experimental test fishery designed to target Tuya River sockeye at fishing sites located in the lower Grand Canyon of the Stikine River upstream from the mouth of the Tahltan River was conducted. The project design followed the design adopted in 2009 in that the majority of nets were fished further upstream in the Stikine River and closer to the mouth of the Tuya River than what occurred in 2008. This change was prompted by the stock identification results from 2008 which indicated that less than 50% of the catch was Tuya River origin sockeye in 2008. The 2011 Tuya test fishery yielded a total catch of 2,878 sockeye and 19 chinook salmon over a nine day period from 22 to 30 July. The sockeye catch consisted of Tuya (70%), Tahltan (25%), and mainstem (5%) stocks/stock aggregates. The estimated catch of 2,016 Tuya sockeye translates into an estimated exploitation rate of approximately 14% on this stock. The majority of the catch was distributed to elders of the Tahltan/Iskut First Nations, most of whom were residents of communities located within the Stikine River drainage.

Taku River

As with the Stikine River, the fishing plan developed by Canada for the Taku River was based on the new arrangements in Annex IV, Chapter 1, Paragraph 3 of the PST in effect for 2009 through 2018. Accordingly, the plan addressed conservation requirements and contained the following harvest objectives: until in-season data was available, to harvest only 30% of the Allowable Catch (AC); thereafter, to harvest chinook salmon in a directed chinook salmon fishery with the catch share adjusted as per weekly run projections; to harvest 21% of the TAC of Taku River sockeye salmon (adjusted as necessary according to projections of the number of enhanced sockeye), plus the projected wild sockeye escapement in excess of 1.6 times the spawning escapement goal; to harvest enhanced Taku River sockeye incidentally to wild sockeye salmon; and, to harvest 3,000 to 10,000 coho salmon in a directed coho fishery, depending on in-river run size projections, plus projected escapement in excess of the spawning escapement goal.

The 2011 commercial fishing season on the Taku River opened on Wednesday, April 27 (SW18) and ended on Thursday, October 6 (SW41). However, fishing activity ceased on September 30 (SW39) due to market and transport conditions. Fishing area and gear restrictions were as per recent years and incorporated the maximum gill net length of 36.6 metres which was established in 2008 for drift gill nets and in 2009 for set gill nets.

The Taku River commercial fishing grounds in Canada consist of the mainstem of the river from the international border upstream approximately 18 km (11 mi.), to a geological feature known locally as Yellow Bluff. Almost all fishing activity takes place in the lower half of this area, downstream of the Tulsequah River.

The First Nation fishery is primarily located in the lower Taku River in the same area as the commercial fishery as described above. However, small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai Lake. There were no time or gear restrictions imposed on this fishery in 2011.

Most of the Chinook sport fishing activity in the Taku watershed occurs on the lower Nakina River. Additional sport fishing sites used less intensively exist on the Tatsatua River, the Sheslay River and other areas within the Taku River drainage. Effort and catches are poorly documented but are believed to be negligible for all species except Chinook salmon and steelhead. This is due to the remote nature of the watershed and somewhat difficult access.

Chinook Salmon

The bilateral pre-season forecast was for a terminal run of 40,986 large Chinook, approximately 13% below the previous 10-year average of 47,200 fish. At a run size of this magnitude and factoring in the

new interim SMSY escapement point goal of 25,500 large fish, the allowable catch (AC) was 9,086 large Chinook, with 6,090 fish (67% of total) allocated to Canada and 2,997 fish (33% of total) allocated to the U.S.. Adding the base level catches (BLCs) of 1,500 fish for Canada and 3,500 fish for the U.S. meant that the total allowable catch (TAC) was 14,086 fish.

Based on deliberations pursuant to Chapter 1, Paragraph 4, which occurred in February 2011, it was determined that some adjustment to management procedures were again required in order to ensure that Chinook TACs were not exceeded. The accuracy of both preseason and in-season forecasting was having an impact on the achievement of management objectives and it was determined that the forecasting methodology required review. In the absence of such a review, it was determined that a cautionary approach would be adopted for the early part of the season. This would involve reduction of the Canadian AC by approximately 30% until reliable in-season projections could be made (typically after mid-May and/or three weeks of fishing). Once reliable joint Canada/U.S. in-season projections were available, the fishery was to be managed to either full directed fishery guidelines with the objective of meeting escapement and agreed harvest sharing objectives, or to strictly test fishery guidelines. The test fishery would be conducted as per Chapter 1, Paragraph 3(b)(3)(xii) and would involve commercial licensing as occurred in 2008 and 2010.

Table 1 identifies weekly fishery guidelines / targets based on either the AC reduced by 30% or the test fishery target of 1,400 large chinook, versus actual catches.

Table 1 Weekly large Chinook guideline harvests or test fishery targets versus actual catches for the Canadian commercial fishery in 2011.

Week	Start Date (Sunday)	Test Catch*	AC x 0.7	Actual
18	April 24	45	123	98
19	May 1	134	374	316
20	May 8	249	691	509
21	May 15	261	725	786
22	May 22	206	-	261
23	May 30	209	-	167
24	June 6	180	-	175
25	June 13	115	-	96

* Test catch targets apply only in the absence of an allowable catch (AC).

In order to honour Annex IV, Chapter 1, Paragraph 3(b)(3)(v) which identifies the need for both Parties to spread the chinook harvest over the season, the duration of weekly fishery openings were based on weekly guideline harvests apportioned by historical run timing data developed using the arrangement noted above. In-season projections of the terminal run size of large chinook salmon were not possible until May 19, SW21, i.e. after four weeks of fishing. The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River chinook in the U.S. sport fishery, the catch in the Canadian fishery, and historical run timing information. Run size projections ranged from 22,200 fish in SW21 (May 15-21) to 15,900 fish in SW25 (June 12-18), the latter of which was the final projection made during the directed fishery. All in-season forecasts indicated a terminal run size significantly below the preseason forecast of

41,000 large chinook. As a result, the fishery operated to test fishery targets for SW 22 through SW 25 (May 22–June 19). Catches were close to weekly guidelines in all of the openings during the reduced directed fishery part of the season (weeks 18–22); the cumulative catch for this period, 1,709 fish, was below the cumulative target of 1,913 fish. Catches were also close to the test fishery targets during weeks 22–25; the cumulative catch for this period was 699 fish, versus the cumulative target of 710 fish.

Management emphasis switched to sockeye salmon in SW26 (June 19–25); at this point, the maximum permissible mesh size was reduced from 204 mm (8.0") to 140 mm (5.5") in order to conserve chinook salmon. Additional catches of Chinook occurred in what constitutes the Canadian chinook base level fisheries: 624 large chinook were taken incidentally during the directed commercial sockeye gill net fishery; 150 large chinook were harvested in the First Nation fishery; and an estimated 100 large chinook were taken in the recreational fishery. The total harvest in the base level fisheries amounted to 874 fish, which was 626 fish less than the base level allowance of 1,500 fish.

The preliminary post-season estimate of terminal run size is 24,083 large chinook, 41% below the pre-season forecast, but above in-season projections. This estimate incorporates information obtained from the spawning grounds. A terminal run size of this magnitude is associated with an AC of zero fish, however there was a base level catch (BLC) of 5,000 fish (1,500 Canada; 3,500 U.S.). Actual catches were 2,583 and 1,828 fish, respectively.

The total Canadian catch of 2,583 large Chinook, including 2,333 commercial (excluding the test fishery catch of 699 fish), 150 First Nation and 100 recreational was 40% above the 2001–2010 average of approximately 3,800 fish, (i.e. excluding test fisheries); however, it should be noted that only four other targeted Chinook fisheries occurred during this period, in 2005, 2006, 2009 and 2010. The 2011 total harvest of small Chinook was 655 fish (634 commercial and 21 First Nation), 7% below the 2001–2010 average of 707 fish.

The preliminary estimate of the spawning escapement of large Chinook is 19,672 fish. This is below the new interim point target of 25,500 large Chinook and just within the overall escapement range of 19,000 to 36,000 fish. The 2011 estimate is 47% below the 2001–2010 average spawning escapements of 37,400 large Chinook (which was predominantly associated with a higher target). During aerial surveys of five index areas, a total of 3,783 large Chinook were observed; this was 32% below the 2001–2010 average.

Sockeye Salmon

The Canadian pre-season run outlook for wild sockeye was 230,685 fish, approximately 6% above the previous 10-year average total run size of 218,000 fish. In addition, approximately 8,300 adult sockeye were expected to return (5,900 of Tatsamenie Lake origin and 2,400 of Trapper Lake origin) from fry outplants associated with the Canada/U.S. joint Taku sockeye enhancement program; this was 54% above the average enhanced run size of 5,400 fish.

The Canadian sockeye catch was 24,153 fish, of which 24,029 were taken in the commercial fishery and 124 in the First Nation fishery. An additional 521 sockeye were taken in the coho test fishery. The commercial catch was within 1% of the 2001–2010 average of 24,100 fish. The contribution of sockeye salmon from the bilateral enhancement program is estimated at 1,592 fish, comprising 6% of the total Canadian catch.

Projections of the total wild sockeye run size, TAC, and total escapement were made frequently throughout the fishing season. The estimates were based on the bilateral mark-recapture program, the estimated catch of Taku River sockeye in U.S. fisheries, the catch in the Canadian fishery, and historical run timing information. These estimates ranged from 180,000 in SW28 (July 3–9) to 191,000 in SW

31(July 24-30) and SW33 (August 7-13). The preliminary post-season estimate of run size is approximately 210,477 fish, comprising 201,330 wild sockeye and 9,147 enhanced sockeye. The wild component was 13% below the preseason forecast, while the enhanced component exceeded the forecast by 10%. Subtracting the escapement target of 75,000 from the run of 210,477 fish results in a TAC of 135,477 fish. The Canadian allowable catch of wild fish, based on a 21% harvest share (which in turn is associated with an enhanced return of 5,000 – 15,000 fish), was 26,529 fish; the actual catch was 22,572 fish representing 18% of the TAC of wild fish. Likewise, the U.S. allowable catch of wild fish, based on a 79% harvest share, was 99,800 fish; the actual catch was 68,249 fish, representing 54% of the TAC of wild fish.

The estimated spawning escapement of sockeye salmon in the Canadian section of the Taku River was 112,187 fish which was well above the target range of 71,000 to 80,000 fish. The 2011 escapement is within 2% of the 2001-2010 average of 110,000 fish. Based on weir counts or - as in the case of King Salmon Lake - expansions of an aerial count, escapements to the Kuthai, Little Trapper, Tatsamenie and King Salmon lakes were 811, 3,309, 7,880, and 2,899 sockeye, respectively. The Kuthai Lake escapement was 20% below the primary brood year escapement and 73% below the 2001-2010 average; it is the sixth consecutive year with well below average escapement. The Little Trapper weir count was 85% below the primary brood year escapement, 70% below average, and only slightly above the record lows set in 2008 and 2010. The Tatsamenie count was 35% below the primary brood year escapement, but was within 8% of average. The escapement to King Salmon Lake was 33% above the primary brood year escapement and 31% above average.

Coho Salmon

The total commercial catch of 8,460 coho salmon was about 1.5 times the 2001-2010 average of 5,300 fish; the First Nation catch of 30 coho salmon was 90% below the average of 295 fish. The catch during the directed coho salmon fishery, i.e. after SW33, was 6,102 fish; this excludes the catch from the test fishery which took place from SW34-41 (August 14–October 5) and landed 4,002 fish. Based on bilateral mark-recapture data, the preliminary estimate of the run into the Canadian section of the drainage is 77,504 fish, 25% below the preseason forecast of 103,000 fish, which was predicated upon average exploitation rates in U.S. fisheries. According to the PST harvest arrangements for Taku coho salmon, at a run size of this magnitude, Canadian fishers were entitled to harvest up to 10,000 coho salmon in a directed fishery starting in SW34, plus projected surplus escapement. The preliminary post-season spawning escapement estimate is 65,012 fish; this is 30,012 fish above the top end of the interim escapement goal range of 27,500 to 35,000 fish. The 2011 spawning escapement was 45% below the previous 10-year average of 119,200 coho salmon.

Joint Sockeye Enhancement

Joint Canada/U.S. enhancement activities continued in 2011. Approximately 84% of the eggs collected in 2010 from Tatsamenie Lake survived to the fry stage at the Snettisham Hatchery in Alaska. Between May 25th and June 12th approximately 1.40 million sockeye fry were out-planted into Tatsamenie Lake. In addition, as part of an onshore extended rearing project, 198,000 fry which had been reared to 0.72 grams in the hatchery were released into four onshore rearing tanks located near the northeast end of the lake (on June 7th). These fish were released in two groups, one on August 1 and the other on August 14, at an average size of 2.62 and 4.0 grams, respectively. As was observed in 2010, a portion of these fish appeared to out-migrate almost immediately, rather than remaining in the lake to rear.

It is estimated that approximately 160,000 sockeye smolts out-migrated from Tatsamenie Lake in the spring and summer of 2011 of which 27,379 were extended-rearing pre-smolts. This was about 66%

above average and it appeared smolt size was above average. The contribution of enhanced smolt to this out-migration was estimated to be 43% based on preliminary thermal mark analysis.

As part of the feasibility study associated with removal of a migration barrier near the outlet of Trapper Lake (detailed in the 2010 Taku Enhancement Plan), eggs were to be collected, from sockeye spawning a short distance downstream. It had been proposed that a total of 150,000 eggs be taken, and placed in Tunjony Creek or Trapper Lake. However, due to the low adult sockeye return to Little Trapper Lake and the lack of past success incubating eggs in Tunjony Creek, eggs were not collected in 2011.

In September 2011, an estimated 2.0 million viable eggs were delivered from Tatsamenie Lake to the Snettisham Hatchery for incubation and thermal marking. This was at the upper target of 2.0 million as directed by the Enhancement Subcommittee of the TCTR.

Alsek River

Although catch sharing of Alsek River salmon stocks between Canada and the U.S. has not yet been specified, Annex IV of the Pacific Salmon Treaty does call for the development and implementation of cooperative abundance-based management plans and programs for Alsek River Chinook and sockeye salmon. Interim escapement goal ranges for Alsek River sockeye and coho salmon were initially set by the TTC at 33,000 to 58,000 sockeye, and 5,400 to 25,000 coho salmon. The principal escapement-monitoring tool for Chinook, sockeye, and coho salmon stocks on the Alsek River is the Klukshu weir, in operation since 1976 by DFO in cooperation with the Champagne-Aishihik First Nation (CAFN).

To make the management objectives of chinook and sockeye salmon better defined in terms of Klukshu stocks, revised goals, expressed in terms of Klukshu escapements only, were established in 1999 and used again in 2011. Mark-recapture programs to estimate the total in river abundance and the fraction of the escapement contributed by the Klukshu stocks were in operation since 1997 for chinook salmon and since 2000 for sockeye salmon. These however were discontinued in 2005.

Previously, a joint escapement goal for Klukshu chinook was developed by both DFO and ADF&G, which recommended an escapement goal range of 1,100 to 2,300 chinook spawners in the Klukshu drainage (McPherson, Etherton and Clark 1998). A review of the recent escapement goal analysis completed by Bernard and Jones in 2010 was conducted by the Canadian Science Advisory Pacific (CSAP). The CSAP review has been finalized. The 2010 analysis suggested a revised escapement goal of 800-1,200 fish. Adoption of the revised goal is pending acceptance by the TTC.

The current biologically-based escapement goal for Klukshu sockeye is 7,500 to 15,000 fish (Clark and Etherton, 2000). Similar to the chinook goal review, an updated escapement goal analysis for sockeye was completed in 2010 by Eggers and Bernard, and was reviewed by CSAP. The CSAP review has been completed. The 2010 analysis suggested a revised escapement goal of 7,500-11,000. Adoption of the revised goal is pending acceptance by the TTC.

Total drainage abundance programs are being investigated as part of the development of abundance-based management regimes and to accurately assess whether the escapement goals for Alsek River Chinook and sockeye salmon stocks are appropriate and if so, are being achieved. At this time, there are no programs in place to estimate the drainage-wide coho salmon escapement. A large and variable proportion of the escapement of each species is enumerated at the weir on the Klukshu River. Current escapement monitoring programs including the Klukshu weir, Village Creek electronic counter, and aerial surveys allow annual comparisons of escapement indices. The most reliable long-term comparative escapement index for Alsek River drainage salmon stocks is the Klukshu River weir count.

The preliminary weir count and escapement estimates of Klukshu River sockeye salmon were 21,389 and 20,904 fish, respectively, in 2011. The count of 5,635 early run fish (count through August 15) was nearly twice the average while the count of 15,754 late run fish was 44% above average. The total escapement of 20,904 fish was well above the upper end of the recommended escapement goal range of 7,500 to 15,000 fish. The sockeye salmon escapement to Village Creek was 352 in 2011. An over flight of Nesketaheen Lake in late September resulted in an estimate of only 150 spawners which verified the low count at Village Creek (average count is 2,804).

The most reliable comparative chinook salmon escapement index for the Alsek River drainage is the Klukshu River weir count. The preliminary chinook salmon weir and escapement counts in 2011 were 1,670 and 1,633, respectively, and were both more than 10% above the averages (1,504 and 1,442). The 2011 escapement was near the middle of the escapement goal range of 1,100 to 2,300 Klukshu chinook salmon.

The Klukshu River coho weir count was 2,119 similar to the 10 year average of 2,358 fish. As in past years, the weir count cannot serve as a reliable run strength indicator as the weir is normally removed well before the end of the coho salmon return to the Klukshu River.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 Pink Net Catch

For the year 2011, Canada was to manage the Area 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 20.72 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 9.97 million pinks. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 248,340 pinks of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be above average for both Area 3 and Area 4, based on brood year return strength. Actual returns to Area 3 and 4 streams were well below pre-season expectations. The 2011 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 160,757 and a preliminary estimate of the Alaska stock component of this catch is estimated to be 145,919, or 1.46 % of the AAH, well below the allotted 2.49 % of the AAH.

Area 1 Pink Troll Catch

For the year 2011, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 % of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 256,319 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1 to September 30. Pink retention was also permitted during the chinook directed fishery in parts of Area 1 which opened June 9th and closed for chinook retention June 21st. Area 1 pink salmon directed effort was very minimal and the fishery harvested a total of 52,221 pink salmon, with an estimated 49,525 or 95% being of Alaskan origin. This equates to 0.50 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement for 2.57 percent of the Alaskan Districts 101, 102 and 103 pink salmon AAH.

Chinook Salmon AABM Fisheries

The pre-season abundance index for North Coast B.C. troll and Haida Gwaii sport fisheries in 2011 was 1.38, which allowed a total catch of 182,400 Chinook salmon in these fisheries. Preliminary estimates indicate a total catch of 122,660 Chinook salmon; 74,660 caught in commercial troll fisheries and 48,000 caught in sport fisheries.

The North Coast B.C. troll fishery was opened for Chinook fishing from June 9 to 21, 2011. The entire 2011 Northern B.C. troll fishery was conducted under a system of individual transferable quotas. The size limit was 67 cm. Barbless hooks and revival boxes were mandatory in the troll fishery. No troll test fisheries were conducted in the North Coast of B.C. in 2011.

Sport fishing was open with a daily limit of 2 Chinook and a possession limit of 4 Chinook. An estimated 48,000 Chinook were caught in the Haida Gwaii (Queen Charlotte Islands) sport fishery. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery.

Chinook ISBM Fisheries

Fisheries included in this category are commercial net fisheries throughout north and central B.C., marine sport fisheries along the mainland coast and freshwater sport, and Native fisheries in both marine and freshwater areas. Under the PST, obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed-stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

North Coast commercial gill net catches totalled 3,586 Chinook from Areas 3 to 6 (from fish slip catch data). Chinook catch in Areas 3 and 4 were 1,337 and 2,249 Chinook respectively. No Chinook were reported caught in Area 5 or Area 6. These preliminary estimates of gill net catches exclude Chinook less than 5 pounds (graded as jacks and small red fleshed Chinook) not normally included for PSC accounting. Small Chinook typically make up less than 5% of commercial gill net catches. In addition, a total of 976 large Chinook and 128 jacks were caught in the Tyee Test fishery on the Skeena River.

Central Coast commercial gill net catches totalled 8,380 Chinook from Area 8 (from fish slip catch data).

Johnstone Strait commercial fisheries including Area B seine and Area D gill net was managed by South Coast and corresponding catches are reported in the South Coast section of this report.

Tidal sport catch from lodges operating in the Rivers Inlet, Hakai Pass and Bella Bella areas were estimated using log books. Approximately 5,225 Chinook were retained at lodges in these areas in 2011. Chinook catch by non-lodge (independent) anglers was estimated to be 2,205 for these areas combined. Independent angler catch was estimated using on-water interview data collected by the Central Coast Conservation and Protection branch of DFO.

Tidal sport catches near the mainland coast of Northern B.C. were estimated at 14,677 by a creel survey conducted in Areas 3 and 4 in 2011. The 2011 catches in the mainland sport fishery in Areas 5 and 6 were unknown. The preliminary estimate from a freshwater creel survey conducted in the Skeena River below Terrace in 2011 was 1,731 Chinook.

Catches by First Nations in the North Coast exceeded 10,863 Chinook. Nisga'a and Gitanyow catches from the Nass River were 4,677 Chinook. Haida catches on Haida Gwaii were estimated to exceed 1,810 Chinook. Only a portion of catches from Native fisheries in the Skeena have been reported but current estimates exceed

4,130 Chinook. Chinook catch by First Nations on the Skeena in 2011 appear to be less than catch estimates from 2010.

Catches by First Nations in the tidal portion of the Central Coast were reported as 69 Chinook (catch reporting data incomplete), while the non-tidal catch of terminal Atnarko River Chinook was 2,199 Chinook (jacks excluded).

Overview of Northern BC Chinook Stock Status

Since assessments of the ISBM fisheries are relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2011 returns is provided. Northern B.C. terminal runs were less than 2010 in the Nass and Skeena Rivers. Preliminary estimates of Nass River escapements decreased to 9,639. Skeena River Chinook escapements also decreased with an estimate of approximately 37,073. Atnarko River Chinook escapements were estimated at 9,400, slightly less than the 2010 return.

Fraser River Sockeye

Objectives and Overview

The 2011 sockeye run-size forecasts focussed on two productivity assumptions: the long-term average productivity and the recent (four to eight year) productivity. The official forecast for 2011 was based on the assumption of recent productivity. The Fraser River Panel (FRP) adopted the 50% probability level of abundance forecast for planning purposes of 3.2 million Fraser sockeye. A majority of the total return (~47%) was expected to be Summer-run sockeye, and secondarily Late-run sockeye (~38%). Pre-season planning indicated that harvest would be directed on Summer-run sockeye, and harvest opportunities would likely be available for all fishery sectors if the pre-season run size forecasts materialized; however, harvest levels beyond First Nations Food Social and Ceremonial (FSC) fisheries would be limited.

Pre-season planning incorporated provisions to meet escapement objectives and meet conservation objectives for stocks of concern while considering international and domestic objectives. Significant effort was placed on developing a pre-season plan for anticipated fisheries. Pre-season modelling indicated that harvest of the sockeye total allowable catch (TAC) would be directed on Summer-run sockeye and would likely be constrained by available TAC of Early Summer and Late-run (Cultus) sockeye if run size expectations and other pre-season assumptions materialized. The pre-season plan included the following assumptions and guiding principles in no particular order:

- The Commission's guidance provided in 2011 (direction to the FRP with respect to implementing Paragraphs 3 and 8 of Chapter 4, Annex IV of The Pacific Salmon Treaty) was renewed;
- The U.S. share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was set at 16.5% of the aggregate. To the extent practicable, the Fraser River Panel (FRP) shall manage the United States fishery to implement a fishing plan that concentrates harvest on the most abundant management group (or groups). It is understood that the U.S. harvest may exceed 16.5% of the TAC for one or more of the less abundant management groups despite concentrating the harvest in this manner;
- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE) of 400,000 Fraser River sockeye, shall be allocated to management groups as follows: The Early Stuart sockeye exemption shall be up to 20% of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution for the most recent

three cycles and modified annually as required to address concerns for Fraser River sockeye stocks and other species and as otherwise agreed by the Fraser River Panel;

- Late-run sockeye have historically been delayed in the Strait of Georgia for 3-6 weeks prior to entering the Fraser River. Beginning in 1996, this behaviour changed to one where there is a shorter delay or occasionally immediate river entry. Concerns for Late-run early entry and the associated elevated rates of en-route and pre-spawn mortality continue. The pre-season management adjustment (MA) for Late-run sockeye was the observed median on the 2011 cycle for all Late-run stocks combined. Alternative approaches would be sought in-season as more information on the Late-run holding behaviour was made available;
- Although the capability to assess in-season run size and migration timing would be good for Late-run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks. As a result the Cultus exploitation rate is assumed to be the same as the exploitation rate from the similarly timed Late run stocks (excluding Harrison and Birkenhead) caught seaward of the confluence of the Fraser and the Vedder rivers;
- Cultus Lake Sockeye will be managed within the constraints of the exploitation rate identified for the Late Run aggregate. The maximum allowable exploitation rate for Cultus Lake Sockeye will be the greater of a) the exploitation rate floor identified for Late Run Sockeye (currently set at 20%), or b) the exploitation rate that is consistent with continued rebuilding of the population based on in-season information on returns and potential numbers of effective spawners. The exploitation rate on Cultus Lake Sockeye is intended to allow for fisheries on more abundant co-migrating stocks;
- Canada's escapement plan specified escapement requirements that varied with run size for the all run timing aggregates;
- Fixed exploitation rate floors were established to protect 90% of the run (10% floor) while allowing for fisheries on more abundant co-migrating run timing groups and/or species. The exception is the Late Run aggregate where a 20% exploitation rate floor has been implemented consistent with recent years' practice;
- For Early Stuart sockeye, window closures and other fishing restrictions were planned for commercial, recreational and First Nations fisheries to protect 90% of the Early Stuart return. These measures included a rolling three week window closure based on run timing of the Early Stuart sockeye migration through various fisheries;
- Harvest constraints were also planned for Canadian fisheries to provide further protection to the earlier timed component of the Early Summer aggregate. These measures included an additional one week extension of the Early Stuart window closure; and
- Conservation concerns for other sockeye stocks and species continued to impact the planning of sockeye fisheries in 2011. The stocks and species of concern in 2011 were: Early Stuart sockeye, Early Miscellaneous Early Summer-run sockeye, Cultus Lake sockeye, Nimpkish sockeye, Sakinaw Lake sockeye, Interior Fraser River coho and Interior Fraser River steelhead.

Pre-Season Assessment

In addition to Canada's escapement plan, estimates of run size, diversion rate, run timing and assumptions about in-season environmental conditions are key inputs required to seed the pre-season Harvest Planning Model prior to observing in-season information. The main objective of the model is to identify potential

fishing opportunities while attempting to meet conservation and international and domestic harvest objectives.

Run Size Forecasts Used for Planning

Forecast uncertainty for sockeye has increased in recent years due to low and variable marine survival estimates (smolt-to-adult) relative to the average. In 2009, the final in-season return estimate fell below the 10p forecast and in 2010 the final in-season return was above the 90p forecast.

As outlined in the Pacific Salmon Treaty (PST), the mid-point of the forecast provided by Canada will be used for management purposes unless the Panel adopts a more precautionary or optimistic forecast until in-season updates of run size are available. In 2011, as recommended by the Department of Fisheries Oceans (DFO) Centre for Scientific Advise Pacific (CSAP) review, the FRP adopted the forecast approach that assumes recent productivity will persist through 2011. For pre-season planning purposes, the FRP used the 50% probability level for all run timing groups and stocks. The 2011 50% probability forecasts for all four management aggregates were as follows: Early Stuart 17,000; Early Summer-run 453,000; Summer-run 1,500,000; and Late-run 1,207,000, for a total of 3,177,000 Fraser sockeye. Comparing forecasted stocks with the historic cycle line run sizes averages (1955-2007), the Early Stuart forecast was 10% of average, Early Summers (excluding miscellaneous stocks) 91% of average, Summers 63% of average, and Lates (excluding miscellaneous stocks) 86% of average. Overall, the 2010 forecasted stocks were 55% of the cycle line average (excluding miscellaneous stocks).

Diversion Rate

The final pre-season forecast of the proportion of Fraser sockeye diverting through Johnstone Strait was 32%. The estimate is based on the relationship between the mean daily sea surface temperature measured at the Kains Island (Quatsino) lighthouse in May and June, and the estimated post-season northern diversion rate for 1977-2010. Increased sea surface temperatures are associated with higher diversion rates.

Timing Forecasts

The forecast of the 50% date (peak timing) by DFO for Early Stuart and Chilko sockeye arriving to Area 20 was June 29 and August 7, respectively. Forecast methods use a linear multiple regression model with two predictor variables: 1) Gulf of Alaska eastward current speed index (in May for Early Stuart, and in March for Chilko), and 2) Gulf of Alaska mean sea surface temperature (SST) in the previous November and December.

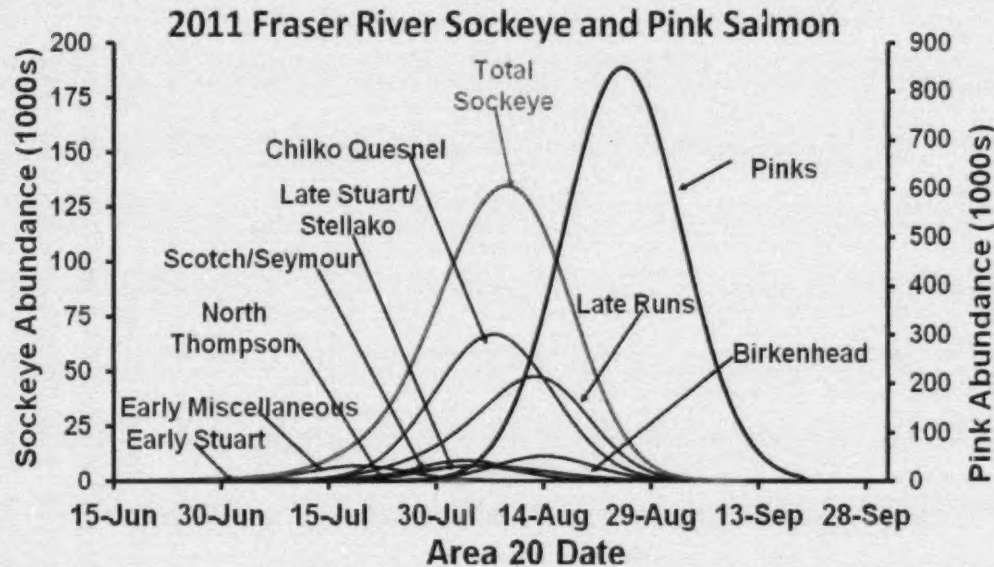
The FRPTC calculated expected run timings for the other stock groups based on their historic relationship to the August 7 timing of Chilko sockeye. The following are the pre-season estimates of timing in Area 20 used for the bilaterally agreed upon pre-season model:

Table 2 Timing Estimates Used for Pre-Season Planning in Area 20

Stock	2011 Area 20 Timing
Early Stuart	June 29
Early Summers	June 31
Summer-run	August 7
Late-run	August 11

The following figure graphically illustrates the relative run size forecasts and run timing overlaps expected in 2011.

Figure 1 Relative Run Size Forecasts and Run Timing Overlaps Expected in 2011



Environmental Conditions and Management Adjustments

Management Adjustments reflect a quantity of fish that are added to the spawning escapement targets for the purpose of increasing the likelihood of achieving the spawning escapement targets. The general concept is that more fish are needed to be counted going past Mission than needed for spawning ground escapement and anticipated catch above Mission, to account for a historic discrepancy between the number of fish counted at Mission in-season (minus the actual catch above Mission) and the number of fish counted on the spawning grounds. This discrepancy may be due to a number of factors, including (but not limited to): critically high temperatures and/or discharge in the Fraser River, bias in estimates at Mission hydroacoustics and/or spawning ground escapement estimates, biased catch estimates, unreported catch, delayed mortality associated with escapes or releases from fishing gear, natural mortality, and/or predation. While all of these factors are included in the difference between estimates, the inputs used to estimate MAs are temperature and discharge for Early Stuarts, Early Summer and Summer-run sockeye and the 50% migration timing at Mission for Late-run sockeye.

For the Early Stuart, Early Summer-run and Summer-run sockeye, MA estimates can be updated in-season for management purposes as river conditions and peak timing information is acquired. Late-run sockeye MA estimates can be updated in-season based on peak timing estimates. The pre-season MA expressed as a percentage of the spawning escapement goal and the number of sockeye this represents for 2011 pre-season run sizes are outlined below.

Table 3 MA Estimates used for Pre-Season Planning 2011

	Pre-season Run Size	pMA	MA
Early Stuarts	17,000	1.23	20,910
Early Summers	453,000	0.21	38,050
Summers	1,500,000	0	0
Late-run	1,207,000	0.69	333,130

2011 Escapement Plan

The *Fraser River Sockeye Spawning Initiative* has been a multi-year collaborative planning process to develop a long-term escapement strategy. The annual escapement strategy seeks a balance between long-term objectives and short-term practical considerations, and combines technical analyses with qualitative judgment. A plan is developed every year and is vetted through consultative processes prior to the fishing season. The annual allowable exploitation rate for each run timing aggregate is adjusted based on run size and environmental conditions. The table below is the pre-season escapement plan for 2011 as reflected in the final IFMP. Note that the management adjustments in Table 4 have been modified subsequent to the release of the IFMP by the Panel based on additional pre-season environmental forecasts.

Table 4 2011 Fraser River Sockeye Escapement Plan – Pre-Season Run Estimates

2011 Early Stuart

pMA	0.63
ER floor	10%
TAM cap	60%

run size	p10	p25	p50	p75	p90
	6,000	11,000	17,000	27,000	42,000
no fishing point/fixed escapement target				108,000	
cut back point:				270,000	
TAM rule	0%	0%	0%	0%	0%
Esc. goal	6,000	11,000	17,000	27,000	42,000
MA	3,800	6,900	10,700	17,000	26,500
goal + MA	9,800	17,900	27,700	44,000	68,500
ER after MA	0%	0%	0%	0%	0%
ER floor	10%	10%	10%	10%	10%
allowable ER	10%	10%	10%	10%	10%
allowable catch	1,000	1,000	2,000	3,000	4,000

2011 Early Summer

pMA	0.43371
ER floor	10%
TAM cap	60%

run size (w misc)	p10	p25	p50	p75	p90
	153,000	257,000	453,000	894,000	1,558,000
no fishing point/fixed escapement target (w/o misc):				120,000	
cut back point (w/o misc):				300,000	
no fishing (w misc)	171,600	170,400	163,700	165,600	151,600
cut back (w misc)	429,000	426,000	409,300	413,900	379,400
TAM rule	0%	34%	60%	60%	60%
Esc. goal	153,000	170,400	181,200	357,600	623,200
MA	66,400	73,900	78,600	155,100	270,300
goal + MA	219,400	244,300	259,800	512,700	893,500
ER after MA	0%	5%	43%	43%	43%
ER floor	10%	10%	10%	10%	10%
allowable ER	10%	10%	43%	43%	43%
allowable catch	15,000	26,000	193,000	381,000	665,000

2011 Summer

pMA	0.07
ER floor	10%
TAM cap	60%

	p10	p25	p50	p75	p90
run size	590,000	903,000	1,500,000	2,657,000	4,835,000
no fishing point/fixed escapement target:				520,000	
cut back point:				1,300,000	
TAM rule	12%	42%	60%	60%	60%
Esc. goal	520,000	520,000	600,000	1,062,800	1,934,000
MA	36,400	36,400	42,000	74,400	135,400
goal + MA	556,400	556,400	642,000	1,137,200	2,069,400
ER after MA	6%	38%	57%	57%	57%
ER floor	10%	10%	10%	10%	10%
allowable ER	10%	38%	57%	57%	57%
allowable catch	59,000	347,000	858,000	1,520,000	2,766,000

2011 Late Run

pMA	0.69
ER floor	20%
TAM cap	60%

	p10	p25	p50	p75	p90
run size (w misc)	257,000	516,000	1,207,000	3,288,000	5,648,000
no fishing point/fixed escapement target (w/o misc):				400,000	
cut back point (w/o misc):				1,000,000	
no fishing (w misc)	404,700	411,200	406,400	403,300	402,600
cut back (w misc)	1,011,800	1,027,900	1,016,000	1,008,300	1,006,400
TAM rule	0%	20%	60%	60%	60%
Esc. goal	257,000	411,200	482,800	1,315,200	2,259,200
MA	177,300	283,700	333,100	907,500	1,558,800
goal + MA	434,300	694,900	815,900	2,222,700	3,818,000
ER after MA	0%	0%	32%	32%	32%
ER floor	20%	20%	20%	20%	20%
allowable ER	20%	20%	32%	32%	32%
allowable catch	51,000	103,000	391,000	1,065,000	1,830,000

In-Season Assessment

Determining the in-season run size in 2011 was challenging given prolonged high water conditions in the Fraser River during the early part of the migration and the significantly larger run size of Fraser pinks compared to Fraser sockeye. With a low pre-season forecast of Early Stuart sockeye, the start-up of marine test fisheries was delayed to reduce any potential impact to the return. This also coincided with near extreme discharge levels in the lower Fraser River and problems with the initiation of the Mission hydroacoustic program and in-river test fisheries. For these reasons the Early Stuart run size estimates were uncertain.

Early Summer and Summer-run run size estimates were challenging to determine in-season due to the protracted migration profile of the Early Summer run and the skewed profile of the Summers, which made it difficult to identify the peak of the runs. Determining the peak timing of the Summer-run (as well as run size) was especially important when considering commercial and recreational fishing opportunities.

Since a component of the Late-run delayed prior to entering the river, the Mission hydroacoustics site could not be used to provide feedback on the expansion lines being used in the marine purse seine test fisheries. This added uncertainty to the estimates of Late-run run size and timing. Also, the Panel took a decision on August 19th to manage Harrison River sockeye, which pre-season were part of the Late-run

stock group, separately in-season due to spatial and temporal differences in their migration. A Gulf Troll test fishery was initiated to estimate the number of fish delaying in the Gulf off the Fraser River mouth.

A discrepancy in the Johnstone Strait purse seine test fishery catches in Area 12 and Area 13, added uncertainty to the run size projections and the run size estimates. There was also another discrepancy between the purse seine test fishery catches in upper Johnstone Strait and the Mission assessment information, causing uncertainty in the run size estimates.

Migration and Timing

The following graphs illustrate the 2011 migration relative to the pre-season forecast of timing and abundance. The later migration timing, and non-normally distributed migration profiles observed in some cases, made it difficult to estimate the peak of the runs in-season.

Figure 2 2011 Early Summer Sockeye Migration Graph

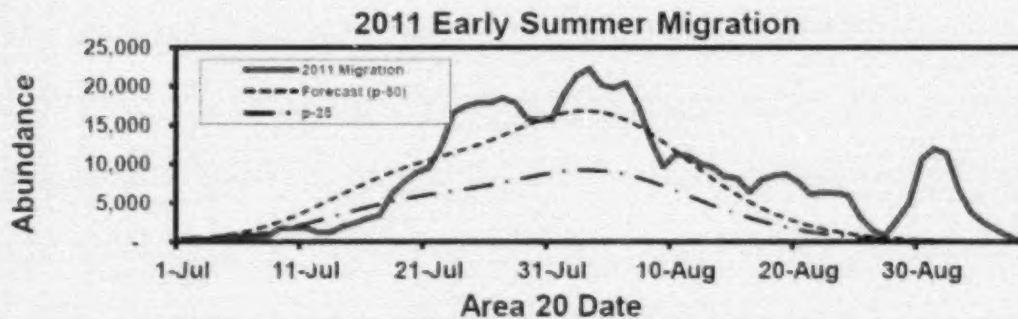


Figure 3 2011 Summer Run Sockeye Migration Graph

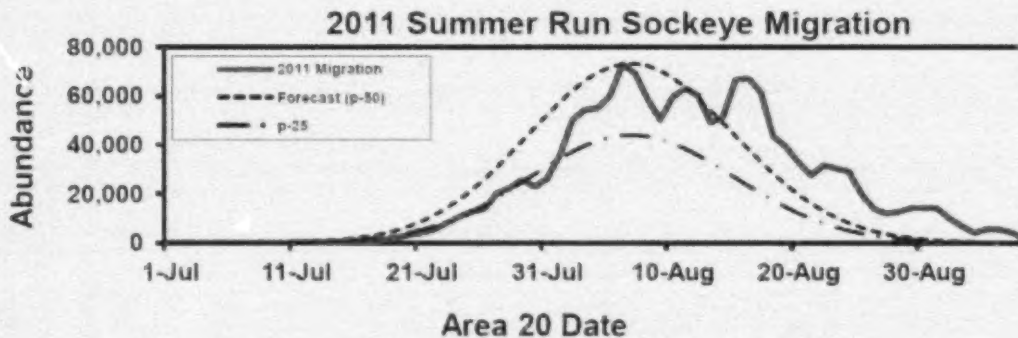
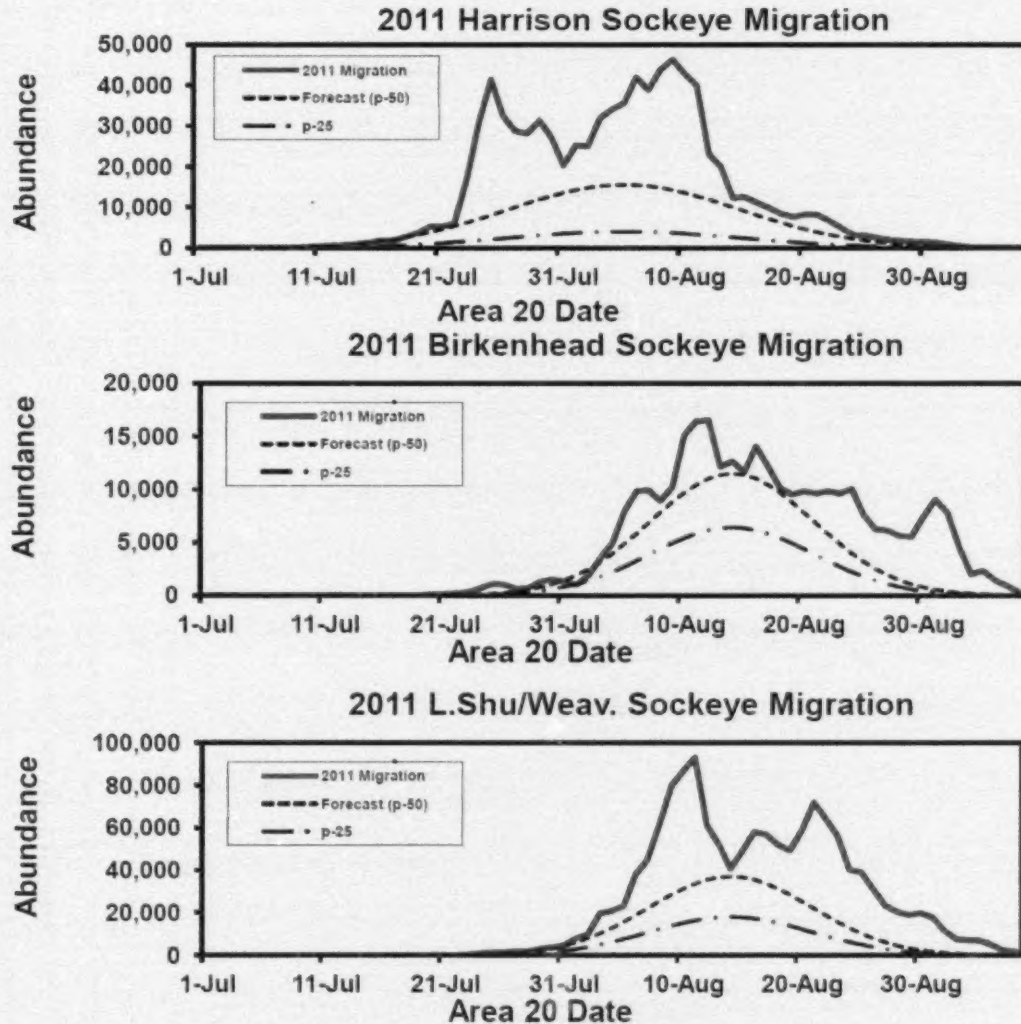


Figure 4 2011 Late Run Sockeye Migration Graph



The Area 20 migration dates (peak) changed considerably between the pre-season and the final in-season estimates. All aggregates exhibited later migration timing to Area 20. Late-run sockeye exhibited some delay behaviour in the Gulf and the final in-season timing estimate for Mission was later than pre-season expectations. Late-run sockeye delay in 2011 was estimated at approximately 3 weeks similar to the lower end of delay observed historically.

Table 5 Expected vs. Observed Age Contributions

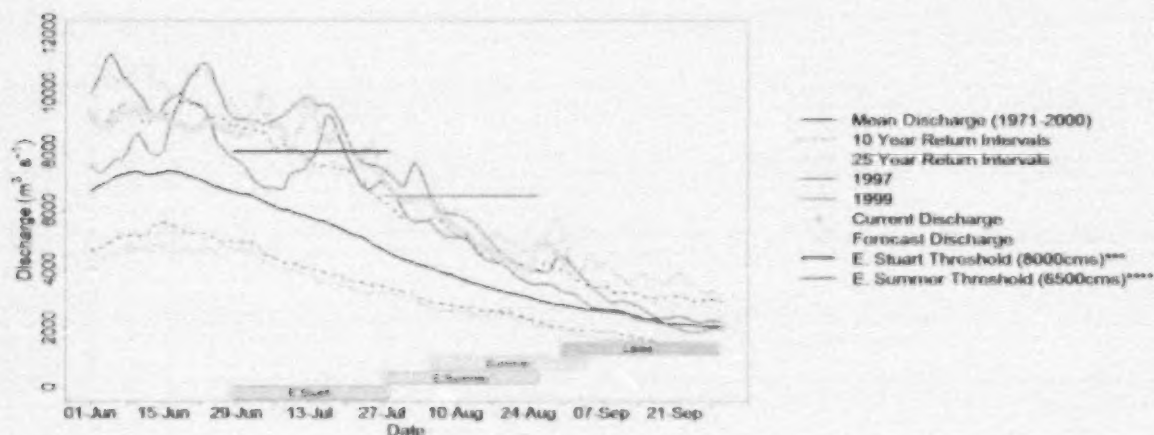
Stock	Area 20 Timing		Mission Timing	
	Pre-season	Final In-season	Pre-season	Final In-season
Early Stuart	June 29	July 2	July 5	July 8
Early Summer	July 31	August 4	August 6	August 10
Summer-run	August 7	August 10	August 13	August 16
Late-run	August 11	August 15*	August 21	September 11*

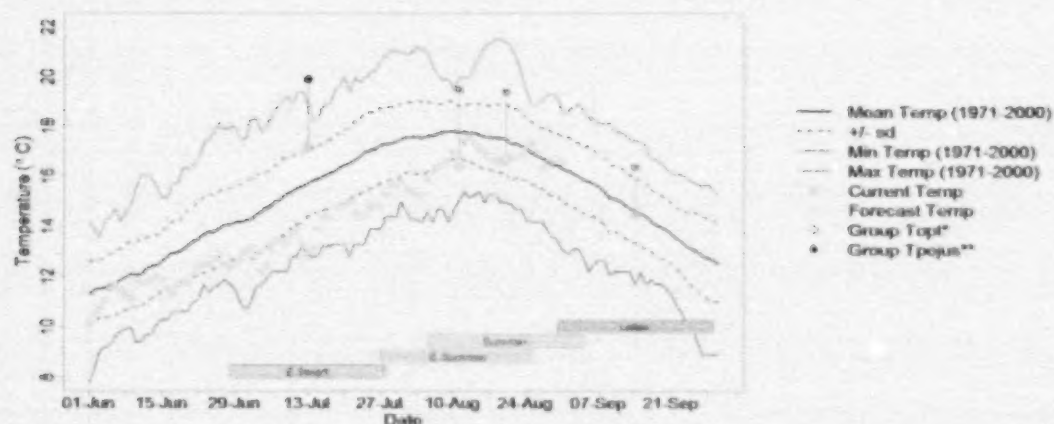
* Timing estimate does not include Harrison sockeye.

Fraser River Environmental Condition and MA

High water discharge can cause serious adverse effects on migratory fish, particularly the Early Stuart and early-timed Early Summer run groups. In 2011, the Fraser River discharge was above average for most of the sockeye migration while temperature remained lower than average for most of the sockeye migration. Discharge ranged between the 10 year return interval and the 25 year return interval for Early Stuart, Early Summer, and Summer-run migrations. Temperatures during the same period hovered around one standard deviation below the long term mean for the Early Stuart, Early Summer, and Summer-run migrations. A significant concern in-season was the effect of extreme water discharges observed during the Early Stuart and Early Summer-run migrations. The figures below illustrate the observed Fraser River discharges at Hope and temperatures at Qualark Creek as well as the corresponding estimated stock aggregate migration periods.

Figure 5 Fraser River Discharge at Hope and Temperature at Qualark Creek





Management Adjustment (MA) models use environmental conditions and run timing as inputs. Due to the extremely high discharge levels observed in July the Early Stuart and Early Summer MAs increased significantly from pre-season estimates. The in-season MAs for Early Summer-run sockeye were particularly sensitive to run timing estimates.

Table 6 Pre-season and In-season Management Adjustments

Stock	p50 Forecast	Pre-Season MA	Final In-season Run Size	Final In-Season MA
Early Stuart	17,000	20,910	25,000	102,500
Early Summer	453,000	38,050	571,000	89,080
Summer	1,500,000	0	1,556,000	0
Harrison	372,000	-	1,381,000	209,760
Late-run	835,000	333,130	1,544,000	216,300

Late-run Delay

Prior to 1995 a three to six week delay in Late-run migration into the Fraser River was a regular occurrence. Since 1995, Late-run sockeye have been observed entering the Fraser River with little or no delay (in most years). The lack of delay has been a precursor to large differences between estimates in most years, and was associated with elevated levels of en-route and pre-spawn mortality, especially in some of the earlier years. In both 2009 and 2010, Late-run delays of approximately 2 weeks in the Gulf were observed. Although this is a positive development for these stocks it should be noted that the delay was shorter than the 3-6 week delay that was observed historically.

On Adams River dominant and subdominant years, some degree of delay is expected. Pre-season planning was based on an Area 20 peak date of August 11, and an in-river 50% migration date of August 21. To assess the numbers of delaying fish, the Gulf Troll was included in the 2011 test fishing plan.

The Gulf Troll test fishery confirmed the evidence of delay of Late-run stocks in the Gulf. Catch in the test fishery was sporadic at times and stock composition varied by date and quadrant. Some likely causes of the latter results include movement of Late-run sockeye to areas where the assessments were not occurring at a particular time (such as the flats near the mouth of the Fraser River), a larger than expected return of Harrison sockeye, potential delay in Summer-run sockeye, and a very large return of Fraser River pink salmon.

The final in-season estimate of Late Run timing is August 15th in Area 20 and September 11th at Mission, which is a 19-day delay (plus another 8 days travel time).

Run Size

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission and Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information. The following table highlights a timeline of run size changes that were adopted by the FRP.

Table 7 Timeline of Run Size changes Adopted by FRP in 2011

Stock	Preseason	Jul 15	Jul 29	Aug 5	Aug 12	Aug 19	Aug 23
E. Stuart	17,000	22,000	23,000	25,000	25,000	25,000	25,000
E. Sum	453,000	453,000	453,000	453,000	480,000	480,000	480,000
Summer	1,500,000	1,500,000	1,500,000	1,500,000	2,000,000	1,600,000	1,600,000
Harrison	372,000	1,207,000	1,207,000	1,207,000	1,475,000	850,000	850,000
Late	835,000					1,100,000	1,240,000

Stock	Preseason	Aug 26	Aug 29	Sep 1	Sept 8	Sep 12	Sep 29
E. Stuart	17,000	25,000	25,000	25,000	25,000	25,000	25,000
E. Sum	453,000	480,000	500,000	520,000	570,000	590,000	571,000
Summer	1,500,000	1,600,000	1,450,000	1,500,000	1,550,000	1,550,000	1,556,000
Harrison	372,000	950,000	950,000	950,000	1,000,000	1,100,000	1,381,000
Late	835,000	1,240,000	1,240,000	1,300,000	1,325,000	1,325,000	1,544,000

Note: Bold values indicate a change. Bold values in italics indicate a run size decrease.

The final in-season run size estimates were higher than the pre-season forecasts for each of the management aggregates (see the Table below). Although the Early Stuart stock group return was above forecast the return was not at a level sufficient to provide directed harvest opportunities (with the exception of some terminal area harvest). The final in-season estimates for Early Stuart, Harrison, and True Late-run sockeye were more similar to the p75 forecasts, whereas the Early Summer and Summer-run sockeye were only slightly above the p50 forecasts.

Table 8 Pre-Season Forecasts vs. Final In-Season Estimates

Stock	Pre-Season Forecast (recent productivity)			Final In-Season Estimate (Sept 29)
	50% Probability	75% Probability	90% Probability	
Early Stuart	17,000	27,000	42,000	25,000
Early Summer	453,000	894,000	1,558,000	571,000
Summer	1,500,000	2,657,000	4,835,000	1,556,000
Harrison	372,000	1,656,000	2,630,000	1,381,000
Late	835,000	1,632,000	3,018,000	1,544,000
Total	3,177,000	6,866,000	12,083,000	5,077,000

The 2011 in-season estimates for Early Summer, Harrison, and Late-run sockeye were greater than the p50 long-term average productivity forecast. The Early Stuart and Summer-run timing groups were below the p50 forecasts (see the Table below).

Table 9 Long-term Average Productivity Pre-season Forecasts vs. Final In-Season Estimates

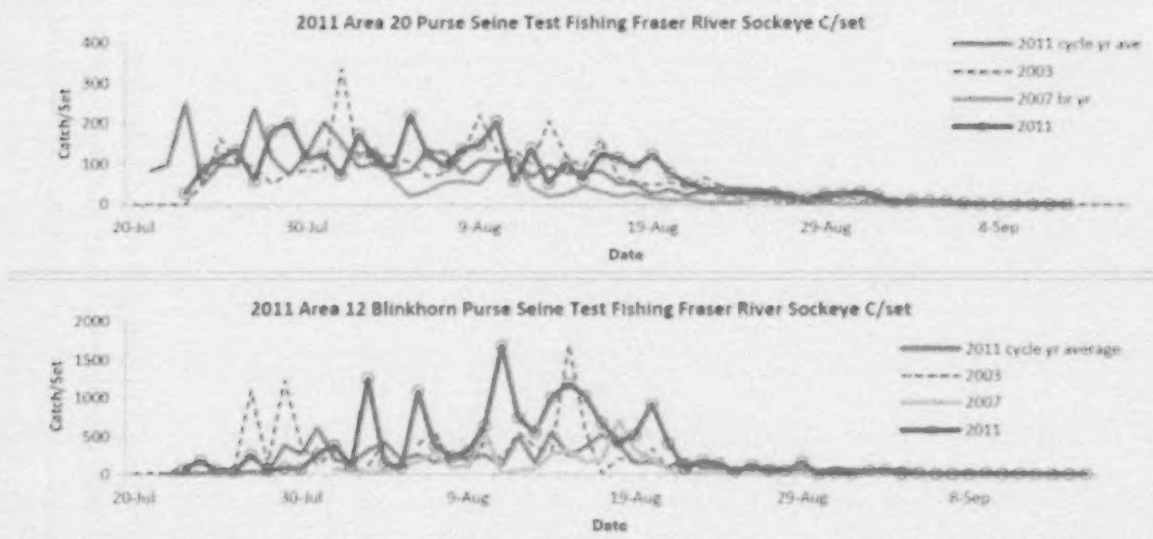
Stock	Pre-Season Forecast (long-term productivity)			Final In-Season Estimate (Sept 29)
	50% Probability	75% Probability	90% Probability	
Early Stuart	47,000	71,000	100,000	25,000
Early Summer	518,000	958,000	1,785,000	571,000
Summer	2,464,000	4,138,000	6,579,000	1,556,000
Harrison	380,000	1,660,000	2,637,000	1,381,000
Late	1,218,000	2,247,000	3,985,000	1,544,000
Total	4,627,000	9,074,000	15,086,000	5,077,000

Diversion Rate

The diversion rate of sockeye through Johnstone Strait was much higher than forecast and was estimated to be ~63% (versus the 32% forecast). With the large number of pinks caught in the test fisheries in late August, the diversion rate had a higher level of uncertainty as the season progressed. The diversion rate has a significant impact on harvest opportunities for domestic and international in-season fishery

planning. The figure below describes 2011 test-fishery CPUE compared to historical CPUE in both approach areas over time.

Figure 6 Test Fishery Average Catches in Area 12 and Area 20



Fisheries

There were directed sockeye harvest opportunities for First Nations FSC, commercial (including First Nations demonstration and economic opportunities), and recreational sockeye retention fisheries. Initially, sockeye harvest opportunities were restricted for all harvest groups based on the requirement for a four week moving window closure to protect Early Stuart sockeye and the early-timed Early Miscellaneous component of the Early Summer-run stock group. This moving window closure was first lifted in the marine areas on July 23, 2011. The moving window closure was lifted in areas of the Fraser as planned pre-season.

First Nations

The majority of First Nation FSC harvest in the marine areas occurred in August. The majority of the catch and fishing effort in marine areas was in Johnstone Strait.

First Nation FSC harvest targeting sockeye in the Fraser River began in late July and was open, per licence conditions, until the Interior Fraser coho closure came into effect in September.

Commercial

Commercial fisheries occurred from early August to mid September. Area B Seine and Area H troll fisheries were managed as individual transferable quota (ITQ) fisheries. Area D and E Gill net fisheries were both managed as competitive, derby-style fisheries. Commercial fisheries occurred in Johnstone Strait, Strait of Georgia, and in the lower Fraser River.

First Nations economic opportunity and demonstration fisheries targeting sockeye and other species occurred in various locations in the Fraser watershed in 2011.

Recreational

Fraser sockeye recreational harvest opportunities were available from mid-August to mid-September with the exception of in-river restrictions due to coho constraints.

The table below outlines final in-season estimates of Fraser River sockeye catch in Canada and the U.S.

Table 10 Preliminary Final In-season Estimates of Fraser River Sockeye Catch in Canada & Final In-season Estimates of Fraser River Sockeye Catch in the US

Total Fraser Sockeye Caught *	1,630,000
Test fisheries (incl. Albion and Qualark)**	45,000
Canadian Catch	1,306,000
Canadian First Nation FSC fisheries- Marine	252,000
Canadian First Nation FSC fisheries- Fraser	562,000
Canadian commercial fisheries (includes commercial selective & FN economic)	443,000
Canadian recreational fisheries	49,000***
United States Catch	279,000
U.S. non-Treaty Indian fisheries	85,000
U.S. Treaty Indian fisheries	181,000
U.S. Treaty Indian ceremonial fisheries	13,000

* Catch as of Nov 29, 2011

** Does not include approximately 730 sockeye captured in the Albion Chum Gillnet test fishery

*** Not yet corrected for stock ID.

Total Allowable Catch

The TAC for Fraser sockeye was calculated pre-season using the information that was available at the time: run size forecasts, the escapement plan, management adjustment forecasts, run timing forecasts, and estimates of test fishing catches. In-season, fisheries are planned using in-season information and are not conducted based on pre-season forecasts.

In 2011, fisheries were planned targeting the stock aggregates with available TAC. Other stock aggregates that could constrain fisheries were harvested incidentally. In some cases fisheries were directed at harvesting sockeye while other fisheries were directed at harvesting pinks with sockeye as by-catch. Harrison sockeye were included in the Late-run aggregate pre-season, but a Panel decision in August was made to manage them separately in-season due to spatial and temporal differences in their migration. Although, the management adjustment and exploitation rate for Harrison sockeye would be different than other Late-run stocks, Harrison sockeye impacts would be accounted for in the total Late-run exploitation rate. The following table shows the pre-season and final in-season international TAC and catch by aggregate.

Table 11 Final In-Season Estimates of Fraser River Sockeye Catch in Canada and US, based on last FRP in-season meeting on September 9, 2011

Stock	Pre-season total TAC*	Final In-season total TAC*	Final In-season Catch
Early Stuart	0	0	1,900
Early Summer	227,500	246,500	194,700
Summer-run	885,400	910,000	784,900
Harrison	380,900	609,200	268,200
Lates		701,700	381,600
Total	1,493,800	2,476,400	1,631,300

* TAC in this table includes the Canadian Aboriginal Fisheries Exemption amount of 400,000 fish.

The following table outlines the final in-season TAC and catch for each country as of November 29, 2011.

Table 12 Final In-Season TAC and Preliminary Post-season Catch as of November 29, 2011.

Stock	Early Stuart	Early Summer	Summer	Late	Total
Test Fisheries	190	7,000	14,000	20,000	40,000
U.S. Catch					
Commercial	20	15,000	102,000	150,000	266,000
C&S	0	530	2,900	9,100	13,000
U.S. Total	20	15,000	105,000	159,000	279,000
U.S. TAC^a	0	34,000	108,000	164,000	306,000
CDN Catch					
Commercial	20	35,000	193,000	215,000	443,000
Recreational ^c	0	4,600	14,000	31,000	49,000
Other ^b	20	910	2,300	1,000	4,000
FSC ^d	1,600	132,000	456,000	225,000	815,000
CDN Total	1,700	173,000	665,000	471,000	1,311,000
CDN TAC	0	221,000	807,000	920,000	1,948,000

^a 16.5% TAC – no payback

^b Other catch is sockeye captured in multi-species non-Panel approved test fisheries (Albion and Qualark)

^c Not yet corrected for Fraser/non-Fraser stock ID in marine recreational catches.

^d Preliminary stock ID only.

Fraser Sockeye Exploitation Rates

The table below outlines pre-season exploitation rate expectations based on the p50 forecast, pre-season MAs and 2011 TAM rules, and final in-season exploitation rate estimates based on final in-season estimates of run size and catch.

Table 13 Potential Exploitation Rates

	Pre-season *	Final In-season Season **
Early Stuart	10%	8%
Early Summer	52%	34%
Summer	60%	50%
Late	32%	22%
Harrison	32%	19%
Non-Harrison	32%	25%
Cultus ***	20%	20%

* ER is based on 2011 TAM rules, median pMAs and the p50 forecast

** ER is based on 2011 TAM rules, final in-season pMAs and final in-season run sizes

*** ER is assumed to be the same as similarly timed Late-run stocks (excluding Harrison and Birkenhead) stocks

Post-Season

Sockeye Migration and Escapement Estimates

Fraser River water discharge levels were high for the majority of the sockeye migration, with some periods of extreme discharge during the earlier part of the migration. The extreme water levels appear to have had negative impacts on Early Stuart sockeye as the migrated to the spawning grounds.

Preliminary spawning ground escapement estimates indicate a very low return of Early Stuart sockeye to the spawning grounds in 2011 at 751 (14% of the brood year of 5,347).

The preliminary Early Summer sockeye escapement estimates of 231,043 indicate a good return relative to brood year (123,461), as well as a return greater than the recent cycle average of 174,480. The preliminary escapement is nearly twice the brood year and the second largest escapement on record on this cycle.

Preliminary Summer sockeye escapement estimates of 1,052,670 indicate a good return and the fourth largest spawning escapement on record on this cycle. It is almost 2.5 times the 2007 brood year (432,274) and is 7% higher than the recent cycle average of 980,436.

Table 14 outlines projected escapement information relative to the escapement goals at the final in-season run sizes. Spawning ground estimates for Late-run sockeye are currently not available.

Table 14 Preliminary Escapement Information to Date

Management Group	Escapement Goal @ final in-season run size	Predicted Escapement *	Preliminary Spawning Esc.
Early Stuart	25,000	4,530	751
Early Summer	228,400	270,760	231,043
Summer	622,400	771,130	1,052,670
Late-run			
Harrison	552,000	806,290	na
Non-Harrison	618,000	861,040	na
Total	2,045,800	2,713,750	

* Based on final in-season catch estimates and predicted differences between estimates

Fraser River Pinks

Pre-Season Assessment

The Fraser River pink salmon forecast was based on the assumption of long-term average productivity. In 2011, the Fraser pink forecast was highly uncertain as there were predictions made regarding data gaps in the 2010 abundance of fry migrating from the Fraser River. Also the fry abundance used to estimate the return forecast was higher than previous observations adding to the uncertainty. The 50% probability forecast for Fraser River pink salmon was 17.5 million, with 25% and 75% probability levels of 12.6 million and 25.1 million respectively. The DFO forecast 50% date (peak timing) for Fraser pink salmon arriving to Area 20 was August 25 and the pre-season diversion rate estimate through Johnstone Strait was predicted to be 59%. The escapement goal for Fraser River pink salmon was 6 million. The Table below outlines total allowable mortality rules for various Fraser pink run sizes. The total allowable mortality at the pre-season run size forecast is 66%.

Table 15 2011 Fraser River Pink Escapement Plan – Pre-season Run Size Estimate

Stock Group	Run Size Estimate of forecasted stocks	Run Size Reference Points	Total Mortality Rate Guidelines	Total Allowable Mortality at Run Size	Escapement Target at Run Size
Fraser Pink		-	7,059		
		7,059	17,143		
	17,495	17,143	65% - 70%	66%	6,000

In 2011 there were pre-season concerns expressed by Canada and the U.S. around sockeye by-catch in directed pink fisheries as there could be limited sockeye TAC available when pink fisheries were anticipated. Both parties agreed that pink fisheries would be undertaken while striving to stay within sockeye harvest constraints.

Due to conservation concerns for some co-migrating species, it was anticipated that, similar to previous years, alternative fishing gear may be employed to access Fraser Pink TAC. Alternative gears used in the past have included beach seines and shallow seines in the Fraser River.

In-Season Assessment

There was very little change between the pre-season peak timing date (August 25) and the final in-season estimate of August 26. The final in-season long-term diversion rate through Johnstone Strait was less than expected and estimated to be 47%.

As the season progressed the FRP considered technical advice provided by the Pacific Salmon Commission and Fraser River Panel Technical Committee members and bilaterally adopted run sizes that reflected in-season assessment information. On September 29th the FRP adopted a final in-season run size estimate of 18.3 million Fraser River pink which is slightly above the p50 forecast level. The following table highlights the timeline of run size changes that were adopted by the FRP.

Table 16 Timeline of Run Size Changes Adopted by FRP in 2011

Stock	Preseason	Sept 9	Sept 12	Sept 29
Fraser Pink	17,500,000	16,000,000	17,500,000	18,300,000

Note: Bold values indicate a change in run size.

Standard in-season run size estimates for Fraser River pink salmon are based on marine area test fishery CPUE multiplied by historical expansion lines. In 2011, expansion lines were modified based on U.S. CPUE data in Areas 7 and 7A. Estimates cannot be confirmed, as Mission does not currently provide a full assessment of pinks and there is not a spawning grounds estimate. The PSC will be assessing post-season a new program with more complete river coverage using DIDSON technology to undertaken to generate a total pink salmon escapement estimate. When added to catch estimates, these may provide an alternative to the test fishery based estimates of total pink salmon run size.

First Nations

There were directed pink harvest opportunities for First Nations FSC fisheries, and commercial fisheries (including First Nations demonstration and economic opportunities). The majority of First Nation FSC harvesting occurred from early to mid-August. The majority of the catch and fishing effort was in Johnstone Strait.

Commercial

Commercial fisheries occurred from early August to late September. In marine waters, Canada managed the majority of the Fraser River pink fisheries as an Area B Seine and Area H Troll sockeye and pink Individual Transferable Quota (ITQ) Demonstration Fishery. Fraser River pink salmon accounting included retained catch and Fraser River sockeye salmon accounting was based on total mortalities, including retained catch and assessed release mortalities.

For any pink or sockeye retained, catches were attributed to available vessel ITQ. Sockeye release mortalities were attributed to available vessel ITQ based on the sockeye to pink salmon encounters (as determined by independent observer data by area and gear), the validated pink catch, and the number of sockeye retained.

Area D and E Gill net fisheries also harvested Fraser pink salmon during sockeye directed fisheries. Area D and E Gill net fisheries were both managed as competitive, derby-style fisheries. These commercial fisheries occurred in Johnstone Strait, Strait of Georgia, and in the lower Fraser River.

First Nations economic opportunity and demonstration fisheries occurred at various locations in the Fraser watershed in 2011.

See Table 17 below for the salmon release mortalities by gear type.

Table 17 Salmon Release Mortality by Gear Type Used in 2011

Seine	25%
Troll	10%
Gill net	60%
Beach Seine	5%

Recreational

Fraser River pink recreational harvest opportunities were available in marine areas and in the Fraser River. The following table outlines preliminary Fraser pink catch estimates in Canada and the United States in 2011.

Table 18 Preliminary Fraser Pink Catch Estimates in Canada and U.S. in 2011

Total Fraser Pink Caught	7,883,300
Test fisheries (incl. Albion and Qualark)	18,700
Canadian Catch	4,956,200
Canadian commercial fisheries (includes commercial selective & FN economic and demonstration fisheries)	4,751,800
Canadian First Nation FSC fisheries	85,200
Canadian recreational fisheries	119,200
United States Catch	2,908,400

Escapement

Since 2003, the final estimate of escapement has been calculated as the final run size minus catch (spawning ground estimates for pink salmon have not been undertaken since 2001). The preliminary net escapement for the 2011 return is 10,416,700 pink salmon.

Southern BC AABM Chinook

Objectives and Overview

Chinook fisheries are managed by either an aggregate abundance-based management (AABM) or individual stock-based management (ISBM) regime. Allowable harvest impacts in AABM areas are determined by provisions in the Pacific Salmon Treaty (PST) and subject to domestic considerations, such as conservation and allocation. In Southern B.C., all AABM chinook fisheries are located off the West Coast Vancouver Island (WCVI), including components of the recreational fishery, First Nations fisheries, and the WCVI Area G troll fishery.

For the period October 2010 through September 2011, the forecast chinook abundance index was 1.15 of the PST base period. Therefore, under treaty provisions, the maximum allowable catch was 196,800 chinook for WCVI AABM fisheries; which includes a 30% reduction consistent with the new treaty provisions that came into effect in January 2009.

Of this total, 60,000 was the pre-season expected catch for the offshore recreational and First Nations fisheries. The remaining 136,800 Chinook were allocated to the WCVI troll fishery.

Further considerations for managing chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS), and Spring 4₂/5₂ and summer 5₂ Fraser River chinook and Interior Fraser coho populations.

Several ocean fisheries in Canada that intercept WCVI origin Chinook, including Northern troll, Queen Charlotte Islands (Haida Gwaii) sport, WCVI troll and WCVI sport, are limited to a 10% exploitation rate, even if PST provisions allow for a higher catch. Management measures are in place to reduce the impact of fisheries on WCVI origin chinook while still providing harvest opportunities.

Continued efforts were made in 2011 to limit the impact of the troll fishery on low status chinook populations, including time and area constraints, as well as limits on effort (boat-days) to protect Spring 4₂/5₂ and summer 5₂ Fraser River chinook stocks.

AABM chinook catch and release information from all fisheries can be found in Table 36.

Table 19 Pre-Season and Post-Season Total Allowable and Preliminary Catch Estimates for October 2010-September 2011 WCVI AABM Chinook

	Pre-Season	Post-Season
WCVI AABM Abundance Index	1.15	under review
WCVI AABM Chinook TAC	196,800	under review
AABM Recreational Catch	55,000	78,350
First Nations Catch	5,000	4,289
Area G Troll Catch	136,800*	123,930
Total AABM Catch		206,569

*The total Area G troll TAC is calculated as the difference between the WCVI AABM chinook TAC less offshore recreational catch and First Nations FSC catch.

Recreational

Fishing regulations in WCVI recreational AABM areas include mandatory use of barbless hooks to lower post-release mortality on sub-legal size chinook (less than 45 cm), and a daily limit of two chinook. Additional conservation measures include a 77 cm maximum size limit, imposed in those portions of Areas 123-127 that lie shoreward of a line drawn 1-mile seaward of the surfline. This area is commonly referred to as the 'Chinook Corridor', and is in place to protect migrating WCVI origin chinook.

In 2011, in the area seaward of the Chinook Corridor recreational harvesters were permitted to retain 2 chinook per day with a minimum size limit of 45 cm. In the Chinook Corridor adjacent to Areas 24, 25, 26, and 27, between August 1 and October 15, recreational harvesters were permitted to retain 2 chinook between 45 and 77 cm in length per day. In the Chinook Corridor adjacent to that portion of Area 123 from a point near Little Beach in Ucluelet to the boundary between Areas 123 and 124 at Florencia Bay, between August 1 and October 15, recreational harvesters were permitted to retain 2 chinook between 45 and 77 cm in length per day. In the Chinook Corridor adjacent to the remainder of Area 23 and Area 21, between August 1 and October 15, recreational harvesters were permitted to retain 2 chinook per day of which 1 could be larger than 77 cm. In all of Areas 121 through 127 after October 15, recreational harvesters were permitted to harvest 2 chinook per day with a minimum size limit of 45 cm including the Chinook Corridor.

Catch in the WCVI recreational fishery is estimated through a creel survey, which collects effort (number of boat trips), and catch per unit effort (CPUE) data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or on-water boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

Total recreational catch and release in the 2011 WCVI AABM fishery was approximately 78,350 and 40,917 chinook, respectively, during the survey period (June-Sept). Overall, previous sampling has indicated that there is virtually no effort outside of this period and catch is expected to be low because inclement weather deters anglers.

Effort in the AABM area for 2011 was 35,078 boat trips.

Figure 7 Recreational WCVI Chinook AABM Catch and Effort, 1995-2011

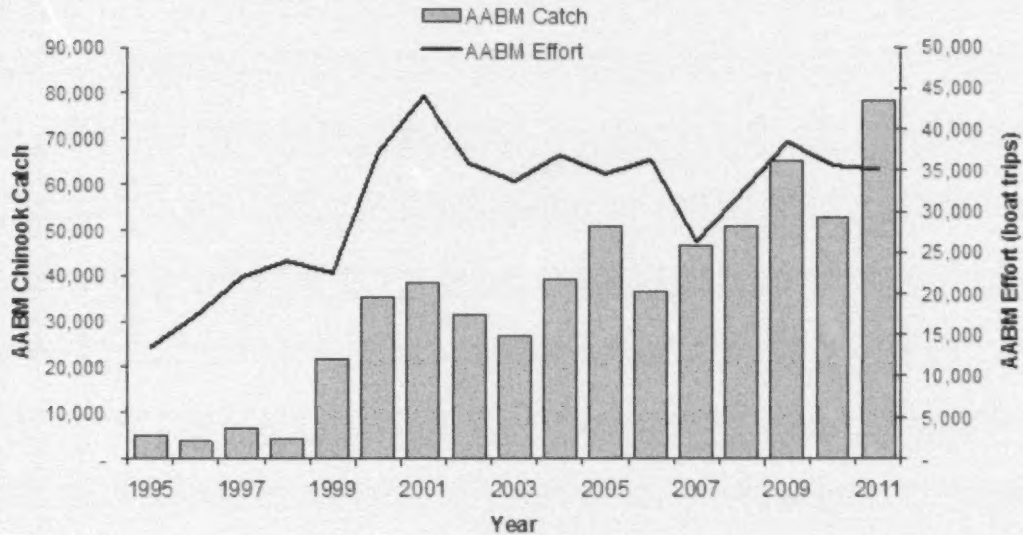


Table 20 Estimated WCVI Recreational AABM Effort, Chinook Catch, and Chinook Releases by PFMA, 2011

Area		AABM Effort (Boat Trips)	AABM Chinook Catch	AABM Total Chinook Releases
Inshore	Nitinat (21)	48	9	6
	Alberni Inlet (23)	6,992	30	-
	Barkley Sound (23)	4,243	5,810	6,212
	Clayoquot Sound (24)	418	474	351
	Nootka Sound (25)	-	-	-
	Kyuquot Sound (26)	23	81	11
	Quatsino Sound (27)	324	432	181
Offshore	Area 121	2,457	11,274	3,176
	Area 123	8,470	27,000	18,243
	Area 124	4,676	16,228	7,798
	Area 125	3,148	5,447	1,505
	Area 126	1,768	5,966	2,657
	Area 127	2,511	5,598	778
WCVI	Total	35,078	78,350	40,917

First Nations

The 2011 WCVI First Nations AABM Chinook reported catch was estimated to be 4,289.

Commercial

For the 2010/2011 chinook year, the AABM Canadian allowable harvest level was 196,800 chinook. It was anticipated that the First Nations FSC harvest would be 5,000; and that the recreational catch would be 55,000, leaving 136,800 chinook available for Area G commercial harvest. Fisheries continued to be shaped by conservation concerns for the following domestic stocks: Spring 42/52 and summer 52 Fraser River chinook, WCVI origin chinook, Lower Georgia Strait (LGS) chinook, and Interior Fraser River coho.

Given a major objective of the Area G troll fishery is to distribute the catch throughout the year (thereby also distributing stock impacts and fishing opportunities through the year), the following management measures were implemented by fishery period:

October to March period

During the period from October 1 to March 15, a harvest level of at least 20% of the Area G annual TAC was recommended, based on fisheries during this period having the lowest impacts on domestic stocks, and given that weather conditions generally limits the TAC. Only 2% of the TAC was harvested.

March 16 to April 19 period

A full time-area closure was maintained from March 15 to April 19 to avoid interception of spring 42/52 Fraser River chinook.

Late April/mid-June period

From April 20 to June 15, to reduce impacts on spring 42/52 Fraser River chinook, i) fisheries were constrained by monthly effort (boat-day) limits, and ii) harvest areas were opened incrementally from north to south (NWVI and inside area opened April 20, Area 124 opened May 2, Area 123 opened May 7). A harvest of approximately 40% of the Area G annual TAC generally occurs during this period; in 2011, 62% of the TAC was harvested.

June 16 to July 23 period

A full time-area closure was maintained from June 16 to July 23 to protect summer 52 Fraser River chinook, WCVI origin chinook, and Interior Fraser coho.

July 24 to August 31 period

From July 24 to August 31, a harvest of approximately 20% of the Area G annual TAC was planned, and 26% of the TAC was harvested. By July 24, summer 52 Fraser River chinook are clear of the harvest area. To reduce impacts on Interior Fraser coho, the fishery was managed through: i) the mandatory use of large (minimum 6") plugs, and ii) a maximum interception of coho. To reduce impacts on WCVI origin chinook, a time-area closure of near shore areas ("chinook conservation corridor") where WCVI chinook stocks are prevalent, was implemented.

September period

During the September period, a harvest of approximately 20% of the Area G annual TAC typically occurs (in 2011, 15% of the TAC remained). The Area G harvest level in September has the potential to increase if there is remaining WCVI AABM TAC after accounting for the catch from First Nation FSC and recreational fisheries. In 2011, the recreational AABM fishery exceeded its expected catch of 55,000 and

as a result, Area G had to forgo planned September fisheries. In years when Area G harvest does occur, opportunities prior to September 15 must be managed to avoid interception of coho and WCVI origin chinook, and after September 15, retention of adipose fin clip (AFC) hatchery origin coho is permitted.

For all troll fisheries, selective fishing practices were mandatory, including single barbless hooks and revival tanks for resuscitating non-retention species prior to release.

The plug fishery from July 24 to August 03 was monitored for encounter rates of other species and to estimate numbers of released chinook. Biological sampling was conducted to collect size distribution information and stock composition (CWT and DNA) samples.

Table 21 Post-Season Preliminary Monthly Catch Estimates for 2006/07 to 2010/11 WCVI AABM Chinook Troll Fisheries

	2010/2011	2009/2010	2008/2009	2007/2008	2006/2007
October	0	0	1,882	3,137	16,000
November	0	0	1,209	0	1,200
December	0	0	1,107	0	800
January	0	0	3,394	1,634	5,500
February	1849	0	1,540	1,911	2,600
March	875	0	586	0	2,300
April	8670	8553	3,616	1,717	5,200
May	41239	31296	18,062	11,105	23,500
June	34394	23652	12,165	15,944	25,000
July	15619*	0	0	0	0
August	21284*	11642*	9,630*	9,099*	0
September	0	3980	0	45,157	6,000
Total	123,930	79,123	53,191	89,704	88,100

Southern BC ISBM Chinook

Objectives and Overview

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian origin chinook and to meet domestic allocation requirements. These chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2011 to protect WCVI, LGS, Spring 42 Upper Fraser River chinook stocks, and spring/summer-run 52 Fraser River chinook stocks. Specific management actions were taken to protect WCVI origin chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which was restricted to an exploitation rate of 10%. Most Southern B.C. commercial fisheries were regulated so that impact on WCVI wild chinook stocks was minimized. Robertson Creek hatchery-origin chinook were harvested in the terminal area of Alberni Inlet by First Nations and recreational fishers.

LGS chinook stocks are experiencing a period of low productivity and management measures continued to be in place throughout 2011 to protect these stocks. As in recent years, recreational chinook non-retention areas and finfish closures were in place throughout the Strait of Georgia to reduce impacts at

critical times and in key areas and commercial retention of chinook was not permitted in the Strait of Georgia and in Johnstone Strait.

In addition to these specific restrictions, in 2011 area and time closures were in place to protect returning Spring 42 Fraser River chinook and Spring/Summer Fraser 52 chinook stocks during sport and commercial fisheries. There was a general requirement in all commercial fisheries to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks. Catch monitoring included requirements for daily catch reporting, mandatory logbooks, hauling catches on a regular basis, and independent on-board observers on vessels when requested. Post-release mortality information for chinook included in ISBM management was determined from studies conducted in 2000-2001 and detailed in the Canadian Stock Assessment Secretariat, Research Document 99/128 (CSAS, Doc 99/128).

ISBM chinook catch and release information from all fisheries can be found in Table 36.

Recreational

West Coast Vancouver Island

The WCVI ISBM chinook sport fishery was regulated using minimum/maximum size limits, possession limits and area closures to reduce impacts of the recreational fishery on natural (un-enhanced) WCVI chinook stocks. Gear is restricted to the use of barbless hooks in all areas although in the inshore area of Alberni harbour and in the Somass/Stamp River, gear is restricted to a single barbless hook. Daily limits were two chinook per day.

Regulations in 2011 required chinook retained within the chinook corridor (one nautical mile seaward of the surfline) to exceed a minimum fork length of 45cm, and be smaller than the maximum size limit of 77cm. This restriction was in effect commencing July 15th for those waters north of Estevan Point and commencing August 1st for those waters south of Estevan Point. These restrictions came out of force after September 30 and October 15, respectively. Retention of chinook greater than 77cm was permitted in some terminal areas with a high percentage of returning hatchery origin fish such as in portions of Alberni and Tlupana inlets. In Port San Juan, chinook non-retention restrictions were in effect from July 15 through October 25.

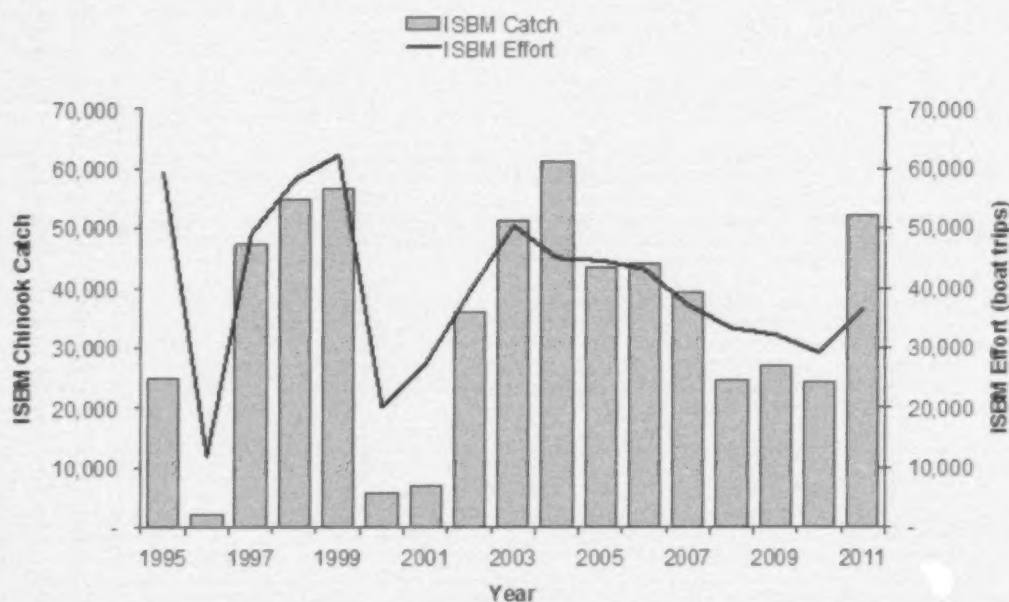
Area restrictions include areas "closed to salmon fishing" or "closed to all fin fishing", depending on the vulnerability of local stocks of concern. These closed areas continued in 2011.

Total recreational chinook catch for the 2011 WCVI ISBM fishery was approximately 52,126 fish, which is a considerable increase from the 2010 catch of 24,346 chinook. In addition there is a year round fishery that takes place in Nitinat Lake which reported good catches in 2011 however this fishery is not monitored by creel survey. The 2011 effort was 36,376 boat trips which is an increase from the 2010 effort level of 29,938 trips.

Table 22 Estimated WCVI Recreational ISBM Effort, Chinook Catch and Release by PFMA, 2011

2011	Area	ISBM Effort (Boat Trips)	ISBM Chinook Catch	ISBM Chinook Release
Inshore	Juan de Fuca (20W)	6,849	7,486	1,946
	Area 21	167	33	28
	Nitinat (22)	-	-	-
	Alberni Inlet (23)	9,947	17,848	727
	Barkley Sound (23)	9,009	10,964	6,555
	Clayoquot (24)	614	54	49
	Nootka (25)	13,258	19,550	7,369
	Kyoquot (26)	573	1,621	511
	Quatsino (27)	2,808	2,056	812
Offshore	Area 121	-	-	-
	Area 123	-	-	-
	Area 124	-	-	-
	Area 125	-	-	-
	Area 126	-	-	-
	Area 127	-	-	-
WCVI		43,225	59,612	17,998

Figure 8 Recreational WCVI Chinook ISBM Catch and Effort, 1995-2011



West Coast Vancouver Island Terminal Areas

Somass/Stamp

During 2011 there was a non-tidal opening for the Somass/Stamp River (Area 23) from August 25, 2011 to December 31, 2011. The daily limit was four salmon per day. Anglers were allowed to retain two chinook of which only one could be greater than 77cm in length. The Somass/Stamp River were not monitored by creel survey during 2011.

Nitinat

During 2011 there was a non-tidal opening for the Nitinat River (Area 22) from August 25, 2011 to September 30, 2011. The daily limit was four salmon per day of which only two could be chinook salmon and only one could be greater than 77 cm in length. The salmon fishery was closed for retention from October 1 until October 15 to protect chinook salmon during the peak spawning period. The fishery re-opened from October 15 until December 31 with zero retention on chinook salmon. The Nitinat River was not monitored by creel survey during 2011. The area above Parker Creek is closed to fishing.

Conuma

During 2011 there was a non-tidal opening for the Conuma River (Area 25) from August 25, 2011 to December 31, 2011. The daily limit was four salmon per day of which only two could be chinook salmon and only one could be greater than 77 cm in length. The Conuma River was not monitored by creel survey during 2011.

Inside Areas: Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait

For Johnstone Strait and the Strait of Georgia north of Cadboro Point, sport catch regulations included an annual limit of 15 chinook, a daily limit of two chinook and a minimum size limit of 62 cm. For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the daily limit was two chinook over 45 cm and a seasonal limit of 20 chinook was in effect.

In those waters near Victoria between Cadboro Point and Sheringham Point (Areas 19-1 to 19-4 and Area 20-5), retention regulations were adjusted from March 2 to June 17 to minimize the harvest of wild, Spring and Summer (stream-type or yearling) chinook stocks of concern returning to the Fraser River. Recreational harvesters were permitted to retain two chinook per day which may be wild or hatchery marked between the size limit of 45cm and 67cm or hatchery marked only chinook over 67 cm in length. From June 18 to July 15 the daily limit remained at two chinook with only one chinook over 67 cm in length.

In addition a "chinook corridor" extending from Subareas 18-1 to 18-6, 18-9, 18-11, 19-5 and a portion of 29-4 and 20-5 that lies south from a point on the east side of Valdes Island and extending 57 degrees true for 5 nautical miles was also implemented in 2011. In this corridor the daily limit was two chinook with a minimum size of 62 cm of which only one could be over 67 cm from May 5 to July 15.

Concern for Cowichan River chinook also prompted a restriction in Subareas 18-6 and 18-7 and 19-7 to 19-12. These areas saw chinook non-retention measures in effect from August 1 through October 15. Additionally, a portion of Subarea 18-7 and 18-8 east of a line from Separation Point to Wilcuma Wharf in Cowichan Bay, across Satellite Channel to Saltspring Island was closed to all fin fishing from August 1 through October 15. Cowichan Bay west of the Separation/Wilcuma line was closed to all fin fishing from August 1 through October 31.

In addition to these seasonal closed areas and size restrictions, anglers are also restricted to the use of barbless hooks. Johnstone Strait and the Strait of Georgia also have a number of Rockfish Conservation Areas (RCAs) where all fishing for finfish is prohibited.

Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait Tributaries

Restrictions were also in effect on many tributaries within the Strait of Georgia, Johnstone Strait and the Strait of Juan de Fuca. The Qualicum and Little Qualicum rivers provided some opportunity to harvest enhanced stocks.

The Qualicum River opened for chinook on August 1 and remained open until the end of the year. Through October 15th the daily limit was 4 salmon none of which could be greater than 62 cm. After October 15th, two of the four chinook that anglers were permitted to retain could be greater than 62 cm. The Little Qualicum River was open from October 1st until November 30th with a daily limit of 1. In both systems there was a minimum size limit of 30 cm, anglers were restricted to the use of barbless hooks and there was an annual limit of 10 chinook salmon greater than 50cm. No catch monitoring effort is directed at these fisheries.

Fraser River and tributaries

Fraser River Spring 4₂ Chinook stocks of concern entering the Fraser River in Subareas 29-6, 29-7, 29-9 and 29-10 required additional management measures again in 2011. Starting May 1 to July 15 the daily limit for chinook was zero. The daily limit was increased to two (2) wild or hatchery marked fish between 62 cm and 77 cm from July 16 to 28. From July 29th until December 31st, the daily limit for wild or hatchery marked chinook salmon was two (2) with a minimum length of 62 cm.

In the tidal (Subareas 29-11 to 29-17) and the non-tidal areas (Region 2) of the Fraser River there was no fishing for salmon from January 1st to July 15th. From July 16th to the 28th, the daily limit was one (1) wild or hatchery marked chinook, between 30 cm and 77 cm. From July 29 to August 31 the daily limit for wild or hatchery marked chinook salmon was four (4) with only one (1) over 50 cm. From September 1st to December 31st the daily limit for wild or hatchery marked chinook salmon was four (4) with only one (1) over 62 cm.

In addition, there were several tributaries to the Fraser River in which Chinook retention was authorized including:

- Alouette River, daily limit of one (1) chinook from July 1st to December 31st
- The Chehalis River, daily limit of four (4) with only one over 50 cm from June 1st until August 10th and again from September 16th until December 31st, a daily limit of four (4) chinook with only one over 62cm.
- The Chilliwack/Vedder River, daily limit of four (4) with only one over 62 cm from July 1st until December 31st
- The Harrison River, daily limit of four (4) with only one over 62 cm from September 1st until December 31st

Tributaries to the Fraser River above Sawmill Creek in which chinook retention was authorized included:

- Bowron River, daily limit of one (1) chinook less than 77cm from July 15 to August 15
- Fraser River (Prince George) , daily limit of one (1) Chinook less than 77 cm from July 15 to August 15.
- Cariboo River, daily limit of one (1) chinook less than 77 cm from July 27 to August 18
- Chilko River, daily limit of one (1) chinook less than 77 cm from July 25 to August 16.
- Quesnel River, daily limit of one (1) chinook less than 77 cm from July 15 to September 1.
- Fraser - Bridge River, daily limit of one (1) chinook from June 22 to July 7
- Fraser – Seton River, daily limit of four (4) chinook with one over 50 cm from August 20 until further notice.
- Clearwater River, daily limit of one (1) chinook with a monthly limit of two (2) which includes chinook caught in the North Thompson River from August 1 to August 22.
- North Thompson River, daily limit of one (1) chinook with a monthly limit of two (2) which includes chinook caught in the Clearwater River from August 1 to August 22.
- Thompson River, daily limit of four (4) chinook with zero over 50 cm from July 16 to September 18.
- Thompson River: daily limit of four (4) chinook per day 1 over 50cm fork Length from August 27 to September 30th, 2011
- South Thompson River, daily limit of four (4) chinook with 2 over 50 cm and monthly limit of six (6) over 50 cm from August 16 to September 22.
- Middle Shuswap River, daily limit of one (1) chinook greater than 77 cm with a monthly limit of four (4) from July 25 to August 15
- Lower Shuswap and Mable Lake, daily limit of one (1) chinook greater than 77 cm with a monthly limit of four (4) from July 25 to August 15. Effective August 16 to September 12, daily limit of four (4) chinook with two (2) over 50 cm and monthly limit of four (4) over 50 cm.

In 2011 marine recreational fisheries were monitored by creel surveys in three main areas; 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through PFMA 20-1; 2) Strait of Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, 28 and 29; and 3) Johnstone Strait including Areas 11 to 13. Monitoring of the Strait of Georgia sport fishery (May to September) and Juan de Fuca Strait sport fishery (February to December) has been fairly consistent from year to year using an access point (landing site) survey for collecting catch, CPUE, and biological information combined with an aerial survey for effort counts. In addition, logbook programs, directed at estimating the recreational catch by fishing guides during guided trips, were conducted in the Campbell River and Victoria Areas in 2011. The Johnstone Strait creel survey commenced in Area 13 in May and continued through until end of September; and from June through August to include Areas 11 and 12.

Overall, effort increased the Strait of Georgia and Juan de Fuca Strait by 34 and 18%, respectively, from 2010 to 2011. The corresponding chinook catch increased by about 51% in the Strait of Georgia and decreased by about 17% in Juan de Fuca from 2010 to 2011. Interestingly, chinook releases increased by a similar amount to kept catch from 2010 to 2011 (approx. 48%) in the Strait of Georgia, while chinook

releases in Juan de Fuca increased by 150% from 2010 to 2011. Estimates of kept and released catch, along with effort and survey duration are summarized in Table 20.

Table 23 Preliminary Catch and Effort Estimates for Southern BC Inside Recreational ISBM Fisheries in 2011.

Fishing Area	Survey Period	Chinook Kept	Chinook Released	Effort (Boat Trips)
Strait of Georgia	May - Sep	8,718	14,181	46,994
Johnstone Strait	Jun - Aug	19,033	8,999	34,456
Juan de Fuca Strait	Feb - Oct	12,860	10,303	44,934
Fraser River ¹	Jul - Oct	16,072	1,154	n/a
TOTAL		56,683	34,637	126,384

¹ subject to change; Fraser River recreational assessments are preliminary

First Nations Fisheries

WCVI FSC and Economic Opportunity Fisheries

In 2011 an agreement was reached with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery targeting Somass chinook (Area 23). Hupacasath and Tseshaht First Nations and Barkley Sound / Alberni Inlet WCVI First Nation's catch reports indicate a combined ISBM FSC chinook harvest of 14,307. Outside WCVI First Nations ISBM catch is estimated at 8,487 for a total WCVI ISBM catch of 22,794.

ESSR Fisheries

The Tseshaht and Hupacasath First Nations were issued a joint Excess Salmon to Spawning Requirements (ESSR) Licence for chinook at the Roberson Creek Hatchery facility. The total catch was 6,799 chinook.

The Ditidaht First Nation was issued an ESSR Licence for chinook at Nitinat Lake and the Nitinat Hatchery. The catch was 7,712 chinook. The total catch for both ESSR fisheries was 14,511.

Strait of Georgia FSC Fisheries

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, preliminary catch is estimated at 2,379 chinook. There were no economic opportunity fisheries.

Fraser River FSC, Economic Opportunity and Demonstration Fisheries

FSC fisheries, as well as economic opportunity fisheries and demonstration fisheries took place in the Fraser River in 2011 harvesting ISBM chinook in the both the upper and lower reaches of the Fraser River. Approximately 10,503 chinook were harvested in the upper Fraser River (above Sawmill Creek)

in FSC fisheries (5,176) and demonstration fisheries (5,327). The total Chinook harvested in the lower Fraser River (below Sawmill Creek) of 28,969 includes FSC (26,443), economic opportunity (2,368) and demonstration (158) fisheries.

Commercial Fisheries

In 2011 commercial gill-net fisheries in Tlupana Inlet (Nootka Sound) and Alberni Inlet targeted ISBM chinook.

Area B Seine

In 2011, no seine fisheries occurred on WCVI ISBM chinook.

Area D gill net

In 2011, gill net fisheries occurred in Tlupana Inlet targeting chinook returns to Conuma River hatchery. Area D gill net openings in Tlupana Inlet occurred on August 9, 14, 15 and 28 for a total chinook catch of 13,861. Maximum effort was 43 vessels per day.

Area D gill net fishery took place in the upper Alberni Inlet targeting Robertson Creek hatchery chinook. A total of 51 vessels participated in a 3-hour opening for a catch of 7,748 fish. Incidental catch of chinook in the Somass sockeye gill-net fishery was 240.

The total WCVI commercial net ISBM harvest was 21,849 chinook.

Area E Gill net

In 2011, there was an Area E Gill Net Chinook Pooled Demonstration fishery that occurred on September 1 within the Fraser River main-stem. There were 28 eligible vessels that participated in this fishery for a total harvest of 2,042 chinook. A Dockside Monitoring Program (DMP) with 100% mandatory landing of all retained catch was in place for this fishery.

Stock Status

Fraser River and Area Chinook

Interior Fraser

Spring chinook returns to the Fraser continue to be of concern. Returns to the Spring 1.3 (5₂ stream-type or yearling) aggregate were mixed, and almost all below parental escapements. While near-final estimates are not yet available for some stocks, aggregate, returns were approximately 55% of the parental brood. Of particular concern are Cottonwood River (~375) and Westroad River (~825). Returns to the Spring 1.2 (4₂) aggregate were also very poor (~2,200 total), however most populations achieved or exceeded parental escapements.

Yearling (stream-type) summer chinook (Summer 1.3 aggregate) returns were also poor to modest, however, on average, returns were almost as abundant as the parent brood year escapements. In contrast, escapements to the late South Thompson 0.3 ocean-type aggregate (4₁) were relatively strong again; returns averaged roughly 150% of brood year escapements. Returns varied considerably between the streams. The escapement to Little River was the highest ever recorded at almost 17,000 and the South

Thompson estimate was the second largest on record at ~84,000. Only the Middle Shuswap River escapement (~880) failed to attain parental brood levels.

Lower Fraser River

Spring Run: Lower Fraser Spring chinook returns were also mixed. Returns to Birkenhead River (~950) were less than the parental escapements (1259) and substantially less than 2010 escapement (~1500). Escapements to the upper Pitt River (Blue Creek) were estimated at ~175, less than the parent brood of 211.

Summer-run: Summer-run chinook returns to Maria Slough were ~1500, more than double that observed in the parental brood year. Information for other Lower Fraser summer populations is not available at this time.

Fall-run: Annual lower Fraser River fall-run chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group is chinook returning to the Harrison River, and Harrison River transplants to the Chilliwack River. For both the Harrison and Chilliwack rivers, the field study portions of the escapement assessments are still ongoing; and data entry and analyses have not started. Extreme weather events and fluctuating water levels in these systems make in-season assessments difficult. Preliminary escapement estimates will not be available until early January.

Howe Sound/Squamish River

No information is available at this time.

Burrard Inlet

No information is available at this time.

Boundary Bay

No information is available at this time.

Strait of Georgia Chinook

Fall Stocks

Total returns to Strait of Georgia streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last seven to ten years (Puntledge and Englishman rivers) or eighteen years (Big Qualicum and Little Qualicum rivers). In general, 2011 chinook escapements were higher in the northern part of the Strait than the last 10 years and lower in the southern part of the Strait than the last 10 years.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns, however in the last three years the returns to Lang Creek have been stronger than in previous years. There are a few very small wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jarvis Inlet, where assessment data are poor or not available. Historically, a large proportion of the chinook stock aggregate originating from rivers north of Nanaimo migrates into central and northern B.C. and Alaska. Exploitation rates on this stock aggregate have

gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

In the southern Strait of Georgia, returns to the Nanaimo River have been generally stable since 1995 at slightly higher levels than those recorded back to 1975. The area of most concern is further south, where chinook stocks returning to the Chemainus and Goldstream rivers have experienced continued declines. Unlike the central and northern Strait stocks, these southern populations historically rear within the Strait of Georgia. However, there appears to be an increasing proportion rearing off the west coast of Vancouver Island.

In particular, Cowichan River chinook (a wild chinook indicator stock) has been in decline since 1995-1996 and reached a low total adult return to river of 1260 in 2009. The status of this population continues to be a stock of concern. Exploitation rates on Cowichan chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and then have steadily increased to 75% on the 2000 and 2001 brood years. Various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia chinook. Additional conservation measures were introduced in 2005 to reduce the harvest of Cowichan chinook by the Strait of Georgia sport and WCVI troll fisheries. First Nations harvest of Cowichan chinook has been substantially reduced in recent years. The declining returns to various southern Strait of Georgia rivers are attributed to high exploitation rates, a decline in marine survival, and habitat issues.

In 2011 the escapement continued to increase from the low levels seen from 2005 to 2009. A preliminary estimate of the freshwater entry is 3,500 adult and 1,700 jack chinook. Of these approximately 714 adults and 20 jacks were used for hatchery brood stock and about 2,800 adults and 1,680 jacks were estimated to spawn naturally. The number of chinook caught in local FSC fisheries has not been reported yet. The high number of age 2 jack chinook in 2011 indicates that the 2012 escapement should be similar to this year.

Spring/Summer Stocks

Of the three early runs in the Strait of Georgia, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data are not available for that stock. Efforts to recover Puntledge Summers to viable levels have resulted in improved returns to the river since 1999. The 2006 and 2007 natural spawning escapements range from 200 - 500 adults (not including brood capture), which is down from the record high in 2005 of approximately 2,500 adults, but substantially higher than escapements recorded in the previous decades. The preliminary estimate for 2011 escapement is approximately 1,250 adults (including 600 brood removals) which is similar to the previous two years. Of concern is the exploitation rate which climbed sharply from a low of approximately 30% in 2001 to 55-60% in 2003-2004. Monitoring of Nanaimo spring and summer chinook escapement has occurred less frequently. This year's escapement is estimated to be around 700 Chinook adults and 100 jacks which is above average for the last 15 years.

West Coast Vancouver Island Chinook

The status of WCVI origin chinook has remained low for several years. Those populations that are not enhanced have remained well below target or declined since major El Nino events in the mid-1990s. Populations in the SWVI area (e.g. Area 24 and southward) tend to be lower status than those populations in the NWVI area.

2011 salmon escapement estimates from extensively surveyed WCVI streams are preliminary. Observations indicate escapements to wild indicator systems in both SWVI and NWVI systems are well

below recent year averages and have declined from 2010 escapements. In particular, escapements to Clayoquot Sound (Area 24) remain very low. In two un-enhanced systems in Clayoquot Sound (Megin and Bedwell-Ursus) less than 70 spawners were observed. There was some improvement to the Nahmint River (Area 23) likely resulting from enhancement efforts. Returns to enhanced systems (Stamp, Conuma and Nitinat) were higher than forecast and were average to above average relative to recent years.

For WCVI hatchery stocks, the terminal return is defined as total catch (First Nation, recreational and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners). In these approach areas, catch is dominated by the hatchery stock (e.g. >95%), therefore, higher exploitation rates are permitted than in times and areas dominated by naturally produced WCVI chinook stocks.

The preliminary total terminal return of Stamp River/Robertson Creek hatchery chinook was approximately 68,000 adults, higher than the pre-season forecast of 47,600. The preliminary escapement through Stamp Falls is 26,000 adult chinook (expected to increase slightly as data are reviewed). The total terminal return to the Conuma River hatchery system was about 32,000 relative to a pre-season forecast of 26,000. The total terminal return to the Nitinat River hatchery system was about 22,800 relative to a pre-season forecast of 9,000. (All data are still being reviewed.)

Johnstone Strait/Mainland Inlet Chinook

Currently only two systems are monitored consistently in Areas 12 and 13. The Nimpkish River is assessed using standardized swim surveys and stream walks by hatchery staff and an intensive mark-recapture program is carried out by Quinsam hatchery to estimate escapement on the Campbell/Quinsam system. Other systems are covered using intermittent visual surveys.

Nimpkish River

Preliminary observations from swim surveys indicate a continued low abundance of Chinook to the Nimpkish Watershed, similar to recent years. At this time, the hatchery is in the process of obtaining their brood stock. Final estimates are not available at this time.

Campbell/Quinsam System

Due to a large and persistent snow pack, flows in the Campbell/Quinsam system were higher than normal throughout the summer. Rain events at the end of September necessitated reservoir spillage by B.C. Hydro, further increasing Campbell flows, while the Quinsam neared flood stage during this time. Flows have remained moderate for the remainder of the Fall. The volume of water discharging from both rivers in late September and early October may have encouraged an earlier movement of chinook and coho into the system this year. Fish were observed in Elk Falls Canyon (top end of the Campbell River) after water releases and large numbers of fish moved into the Quinsam with the high water as well.

Spawning occurred within the usual time frame on the Campbell River. A high proportion of chinook continue to utilize upper river spawning areas; results of ongoing enhancement and restoration efforts.

When Quinsam River levels dropped in the first week of October, the floating fence was installed in the lower river by hatchery staff to assist in brood stock capture. Fish that had moved in prior were observed spawning between this location and the hatchery. Spawning timing is estimated as 1-2 weeks earlier than normal.

Hatchery brood targets were met. A larger male to female ratio was observed at the rack, likely due to a predominance of smaller age-3 males. Consequently, and also as a result of a weak age-5 component, average fish size was smaller, however female fecundities remained in the normal range. Egg-takes were completed a week earlier than past years.

The key stream mark-recapture program is still underway however carcasses are again in lower abundance on both rivers. Preliminary estimates indicate a return of approximately 4,900 fish to the Campbell/Quinsam system, similar to 2010 and below the historical average.

Southern BC Coho

Objectives and Overview

In 2011 the abundance forecast indicated that the status of Interior Fraser River (including Thompson River) coho remained at category I, Stock of Concern, as defined in the 2011 Salmon Outlook. The lower Fraser was categorized as low, while Georgia Basin (east and west) was stock of concern to low. Johnstone Strait coho management units were all forecast low to near target.

In 2011, Interior Fraser coho were a primary concern when implementing fisheries. Under the Abundance Based Management provisions in the Pacific Salmon Treaty, Canadian fisheries were managed to limit the total mortality to a ceiling of 3% across all Canadian fisheries. The total exploitation on Interior Fraser coho was therefore limited to a maximum of 13% (including U.S. exploitation).

To ensure this limit was not exceeded in Canadian fisheries, retention of wild "unmarked" coho was not permitted in all recreational and commercial fisheries operating in areas of southern B.C. where Interior Fraser coho were known to be prevalent. Wild coho retention was permitted in some terminal areas along the West Coast Vancouver Island (WCVI), in the Mainland Inlets, and in a small portion of upper Johnstone Strait, and Queen Charlotte Strait.

Table 24 Preliminary coho catch estimates of the recreational, First Nations (FSC, economic opportunity and ESSR), and commercial fisheries for Southern BC in 2011

	Kept	Released
Recreational	77,935	136,625
First Nations	30,488	0
Commercial	1,981	32,855
Total	110,404	169,480

Coho catch and release information from all fisheries can be found in Table 38.

Recreational

Sport fisheries can be categorized as occurring in mixed stock areas where specific coho stocks (such as Interior Fraser coho) could not be avoided and terminal areas where local stocks dominate the catch. The table below outlines the areas in Southern B.C. where these mixed stock fisheries occurred and the general regulations pertaining to them.

Table 25 Southern BC coho fishery regulations in 2011

Mixed stock fishing area	Daily Limit (marked or unmarked)	Size Limit	Coho Season
WCVI offshore areas 121-127 and areas 21 and 26	2 marked	30 cm.	Jun 1 – Aug 31
WCVI offshore areas 121-127 and areas 21 and 26	4 marked	30 cm.	Sept 1 – Dec 31
WCVI inshore area 23,24,25 and 27	2	30 cm.	Jun 1 – Aug 31
WCVI inshore area 23,25, and 27	4	30 cm.	Sept 1 – Dec 31
WCVI inshore area 24	4, 2 may be wild	30cm	Sept 1 – Dec 31
Juan de Fuca: areas 19-20	2 marked	30 cm.	Jun 1 – Dec 31
Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas and times.	2 marked	30 cm.	June 1 – Dec 31
Johnstone Strait – Queen Charlotte Strait: all areas	2 marked	30 cm.	June 1 – Dec 31

The table below outlines coho catch and release information for recreational coho fisheries in Southern B.C.. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary). This coho boundary was in place to protect Interior Fraser River wild coho which are found off WCVI during mid to late summer.

Table 26 Recreational coho catch and effort estimates for Southern BC in 2011

Area	Kept	Released	Effort (Boat Trips)
WCVI – Inshore (20W – 27)	40,207	32,292	71,454*
WCVI – Offshore (21 – 127)	24,240	78,946	
Strait of Georgia (May – Sep)	736	2,529	46,994
Fraser River* *	943	1,113	NA
Juan de Fuca (Feb – Sep)	7,054	11,417	44,934
Johnstone Strait	5,698	11,411	34,456
TOTALS	78,878	137,768	197,838

* Combined effort data for WCVI inside and WCVI outside coho.

** subject to change; Fraser River recreational assessments preliminary

Mixed Stock Areas

In 2011, hatchery selective mark fisheries (SMF) fisheries in southern B.C. allowed hatchery coho retention starting June 1st in most areas.

Release of wild “unmarked” coho was required in all sport fisheries operating in areas of southern B.C. where Interior Fraser River coho were known to be prevalent, including the mixed stock areas of the WCVI (Statistical Areas 21-27, 121-127), Strait of Juan de Fuca (Statistical Areas 19-20), Strait of Georgia (Areas 14-19, 28, 29), and the majority of Johnstone Strait and Queen Charlotte Strait (Statistical Areas 11, 12 and 13). Some wild “unmarked” retention opportunities were provided in terminal areas of WCVI and Areas 11, 12 and 13 with catch limit, time and area constraints (details in Pacific Region Integrated Fisheries Management Plan, Salmon Southern B.C. 2011). In addition, the use of barbless hooks was mandatory in all these areas.

West Coast Vancouver Island

In offshore and rearing areas off the WCVI, selective mark fishery (SMF) regulations are in effect in order to protect weak coho stocks of concern, such as those originating from the Interior Fraser River. The daily limit is 2 marked coho (i.e. hatchery-origin coho with an adipose clip). For 2011, total catch in offshore areas was estimated at 24,240 kept and 78,946 released.

Inside Areas: Strait of Georgia, Juan de Fuca Strait, and Johnstone Strait

Recreational catch monitoring has occurred from May-September in the Strait of Georgia, June through August in Johnstone Strait, and February to December in Juan de Fuca Strait. Coho catch, release, and mark rates are derived from two main sources; creel surveys and guide logbooks. The total coho catch in these three mixed stock and terminal areas are summarized in Table 26.

Terminal Fishing Areas

West Coast Vancouver Island

In WCVI terminal fishing areas, retention of adipose clipped hatchery origin coho was permitted as well as retention of wild "unmarked" coho in some portions of inshore areas where WCVI origin stocks dominate (Port San Juan (Area 20), portions of Alberni Inlet and portions of Barkley Sound (Area 23), portions of Clayoquot Sound (Area 24), portions of Nootka Sound and Esperanza Inlet (Area 25), and portions of Quatsino Sound (Area 27). Where retention of wild coho was permitted, the seasonal daily limit was 2 coho after June 1st with the exception of portions of Alberni Inlet, Tlupana Inlet and Nitinat Lake (Tidal) where the daily limit was increased to 4 coho after August 1st; and in Port San Juan where coho was open from September 7 through December 31 with a daily limit of four coho of which two could be wild. In some portions of Area 24 the coho daily limit after August 31 was 4 per day of which 2 could be wild.

Strait of Georgia

Terminal coho SMF were implemented in most areas in the Strait of Georgia in 2011 where impacts on other species or stocks were not a concern. In some of these areas special management actions, including changes in daily limits or size limits, were implemented depending on the situation.

Non-Tidal Recreational Fisheries

Johnstone Strait

In Johnstone Strait, non-tidal openings for coho were available on:

- Cayeghle River (including the Colonial River) from April 1st to March 31st for one (1) per day.
- Campbell/Quinsam River from October 1st to December 31st for four (4) per day, two (2) of which could be wild over 35 cm.
- Cluxewe River from April 1st to March 31st for two (2) per day, hatchery marked only.
- Kokisilah River from April 1 to March 31 for one (1) per day, maximum size limit of 35 cm.
- Nahwitti River from April 1st to March 31st for one (1) per day.
- Quatse River from June 15th to March 31st for two (2) per day, hatchery marked only.

Anglers are restricted to the use of barbless hooks. The Campbell/Quinsam fishery was the only fishery of the above that was monitored by creel survey during 2011.

Strait of Georgia

During 2011 there were limited non-tidal openings throughout the Strait of Georgia.

- Qualicum River from October 14th to March 31st for four (4) per day, two (2) of which could be wild over 35 cm.
- Chemainus River from October 15th to March 31st for one (1) per day, maximum size limit of 35 cm.

- Little Qualicum River – closed due to poor coho escapement.
- Puntledge River– closed due to poor coho escapement.
- Nanaimo River from November 1st to March 31st for one (1) per day, maximum size limit of 35 cm.
- Cowichan River from November 16th to December 31st for one (1) per day, minimum size limit 25 cm.

Anglers are restricted to the use of barbless hooks. The fishery was not monitored by creel survey during 2011.

West Coast Vancouver Island

San Juan River

There was a non-tidal opening for the San Juan River (Area 20) from November 8, 2011 to December 31, 2011. The daily limit was one coho per day either marked or unmarked. This fishery was not monitored by creel survey during 2011. The San Juan River is closed above its confluence with the Fleet River. A single barbless hook restriction is in effect all year and there is also a bait restriction in effect.

Somass/Stamp

During 2011 there was a non-tidal opening for the Somass/Stamp Rivers (Area 23) from August 25, 2011 to December 31, 2011. The daily limit was four salmon per day of which two could be coho salmon either marked or unmarked. The Somass/Stamp Rivers were not monitored by creel survey during 2011. Some portions of the Somass/Stamp Rivers are closed to protect migrating salmon such as the area around the Stamp Falls Fishway. A single barbless hook restriction is in effect all year and there is a bait restriction in the Upper Somass and Stamp after September 15.

Nitinat River

During 2011 there were two non-tidal openings for Nitinat River (Area 22) coho from August 25, 2011 to September 30, 2011. This was a change from previous years and allowed anglers an extra opportunity for coho. The daily limit for coho was 2 (marked or unmarked). The fishery closed from October 1 until October 14. It re-opened from October 15 until December 31. This 2 week closure provided protection to chinook salmon during the peak spawning period. After the closure, the daily limit for salmon was 4; anglers were allowed to retain two coho (marked or unmarked) and two chum salmon. The Nitinat River was not monitored by creel survey during 2011. The area above Parker Creek is closed to fishing.

Conuma

During 2011 there was a non-tidal opening for the Conuma River (Area 25) from August 25, 2011 to December 31, 2011. The daily limit was four salmon per day of which two could be coho (marked or unmarked). The Conuma River was not monitored by creel survey during 2011.

Washlawlis River and Waukwass River and Other West Coast Rivers

The Washlawlis and Waukwass rivers are open year-round with a daily limit of one coho, marked or unmarked. Barbless hooks are required. No creel survey information is collected. Other rivers receive some directed effort for native stocks such as the Wakeman, Artlish, Zeballos, Tahsis, Burman, Ash,

Taylor, Pacheena, Toquart, Leiner, etc. The quota for all west coast streams unless identified above is zero.

Fraser River and Tributaries

During 2011 the retention of 2 hatchery marked coho per day was authorized in the lower Fraser River up to Sawmill Creek. Due to the migration timing of Interior Fraser coho, the openings were scheduled to occur once the majority of this coho population was through the area. A description of the areas in the Fraser River which were open to the retention of hatchery marked coho follows with the corresponding opening dates.

- From the CPR Bridge at Mission, B.C. upstream to a line drawn between two triangular white boundary signs located on opposite sides of the Fraser River approximately 3 km upstream of the confluence with the Harrison River (downstream of Jespersen's Bar) - open from October 11th to December 31st.
- From a line drawn between two triangular white boundary signs located on opposite sides of the Fraser River approximately 3 km upstream of the confluence with the Harrison River (downstream of Jespersen's Bar) upstream to the Highway #1 bridge at Hope - open from October 11th to December 31st.
- From the Highway #1 bridge at Hope to Sawmill Creek - open from October 16th until December 31st.
- There are no directed coho openings in the Fraser River or tributaries upstream of Sawmill Creek.

In addition, the following tributaries to the Fraser River allowing a daily retention of one (1) hatchery marked coho were open from October 1st to December 31st: Alouette River and Coquitlam River. Kanaka Creek allowed a daily retention of one (1) hatchery marked coho from November 1st to November 30th.

The following tributaries to the Fraser River allow a daily retention of four (4) hatchery marked coho from July 1st to December 31st: Chapman Creek, Chilliwack River, and Chehalis River.

The Harrison River allowed a daily retention of four (4) hatchery marked coho from September 1st to December 31st.

The following tributaries to the Fraser River allow a daily retention of four (4) hatchery marked coho, with only two (2) over 35cm from January 1st to December 31st: Nicomen Slough, Norrish Creek and Stave River.

The following rivers, which enter Boundary Bay allowed the retention of one (1) hatchery marked coho per day from October 1st to December 31st: Little Campbell River, Serpentine River and Nicomekl River.

First Nations Fisheries

WCVI Economic Opportunity and FSC Fisheries

In 2011 an agreement was reached with the Hupacasath and Tseshah First Nations for an economic opportunity fishery targeting coho (Area 23). This was a drag seine fishery at two designated sites, Paper Mill Dam and the Robertson Creek Hatchery Lagoon. The total catch in these fisheries was 1,916 coho. The remainder of WCVI First Nation's catch was reported at 6,015 coho. The combined harvest was 7,931 coho.

ESSR Fisheries

The Tseshah and Hupacasath First Nations were issued a joint ESSR Licence for Coho at the Roberson Creek Hatchery facility. The total catch was 10,860 coho.

The Ditidaht First Nation was issued an ESSR Licence for Nitinat Lake and the Nitinat Hatchery. The total catch was 200 coho. The total catch for the ESSR fisheries was 11,060 coho.

Lower Fraser

Total FSC, EO and ESSR catch in 2011 for the Lower Fraser River was 46,575 coho, the majority of which was caught in ESSR fisheries (45,330).

BC Interior

There were no EO or ESSR fisheries in the B.C. Interior (Fraser River above Sawmill Creek) in 2011. Total retained coho catch in 2011 FSC and demonstration fisheries above Sawmill Creek was 5 and 0, respectively.

Strait of Georgia

Data are still being compiled on various First Nations catches in the Strait of Georgia; however, the total preliminary catch is estimated to be 10,546 all of which was caught in FSC fisheries. There were no economic opportunity fisheries.

Other Aboriginal Coho Fisheries

Preliminary figures from the Mowachaht/Muchalaht First Nations indicate a catch of 157 Gold River coho. The fishery takes place with small seine nets at the mouth of the Gold River. One steelhead was also landed.

Commercial Fisheries

In 2011, Southern B.C. commercial fisheries were generally regulated so that impacts on coho, and especially Interior Fraser coho stocks, were minimized. Terminal opportunities to retain coho by-catch during directed chinook and chum fisheries were available to Area D gill net.

Area G troll AABM chinook fisheries are permitted to retain incidentally caught Selective Hatchery Marked coho after September 15 until March 15. For the 2010/11 (October 1, 2010 to September 30,

2011) AABM chinook fishing periods the estimated total coho retained was zero and releases during this period were estimated at approximately 12,076.

WCVI Terminal Area Coho

In 2011, commercial gill-net and seine fisheries occurred in Alberni Inlet and off-shore from Nitinat Lake. Gill-net fisheries occurred in Tlupana Inlet, outer Barkley Sound, Nootka Sound and Esperanza Inlet. When targeting sockeye, chum or hatchery chinook returns harvesters may encounter and retain or release coho by-catch. In 2011 the total WCVI coho by-catch in commercial sockeye, chum and chinook net fisheries was 1168 retained and 495 released.

Stock Status

Upper Fraser

Field programs to estimate escapements are still underway, and only very preliminary results are available for some systems. Early returns to the Interior Fraser River indicate that escapement has likely declined in comparison to 2010 returns and are likely at levels similar to or slightly better than the 2008 parent brood escapements. Very preliminary data indicate returns to the entire Interior Fraser River may range between 16,000 and 20,000; however, preliminary estimates are not yet available, and near final estimates will not be available until early February, as most field studies are not yet completed.

Lower Fraser

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River, Howe Sound/Squamish River, Burrard Inlet and Boundary Bay.

Lower Fraser River

Escapement studies are currently underway, and many populations have not reached peak spawning at the time of writing. Preliminary escapement estimates for the surveyed systems should be available by late February, 2012.

A hatchery coho indicator stock is provided by Inch Creek hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated, these estimates are not yet available. Adult coho visual surveys are conducted for a number of systems within the lower Fraser River sub-area as part of multi-species assessments; however estimates are not yet available as the field programs will not be complete until late January or early February 2012.

Howe Sound/Squamish River

Assessments for Howe Sound and Squamish River are incomplete at this time. Staff at the DFO Tenderfoot hatchery will be taking brood stock until February, 2012.

Burrard Inlet

An assessment of the returns to DFO Capilano hatchery is not yet complete. The 2011 abundance and status of this stock group is not known at this time.

Boundary Bay

Community-run SEP projects contribute significantly to coho returns to this sub-area. The 2011 data will not be available until late February 2012.

Strait of Georgia

The observed 2010 marine survivals for both wild and hatchery coho were lower than the previous year (0.5% - 0.8% hatchery, wild 1.6%) These levels are less than replacement levels. The forecast models predicted continuing low levels of marine survival in 2011, 0.5% - 0.9% for hatchery stocks and 1.4% - 2.1% for wild stocks. This regime of low marine survivals has been observed since the early 1990s.

Hatchery Stocks

The preliminary 2011 coho escapement estimates of monitored hatcheries show a continuation of increasing escapements from the low returns in recent years. Escapements to northern Strait of Georgia stocks (Puntledge, Qualicum, Lang) are average to higher over the short term. The standout escapement was Qualicum River which had a much higher than average escapement, allowing a non-tidal fishery to proceed. Escapements to southern Strait of Georgia stocks (Nanaimo, Goldstream) are below the short term average but improving over the last couple of years. These stocks are slowly increasing over the brood year escapements.

Wild Stocks

There are two wild indicators in the Strait of Georgia, at Black Creek and Myrtle Creek.

Myrtle Creek

The 2011 Myrtle Creek project is ongoing and results will not be available for another month. The escapement is expected to be less than 2010 (13 adults, which is similar to previous years). A spawning habitat project was started this year to augment the limited spawning habitat in this creek and will continue through 2011. The 2010 forecast of marine survival is 2.1%

Black Creek

The 2011 Black Creek Adult project is ongoing; escapement to date has been minimal with low water conditions over the course of the program and dead-pitch has not been started. The preliminary escapement looks to be much lower than 2010 and similar to the escapement of 2006 (565 adults). The fence count to date is 853 adults, which is the second lowest escapement in 10 years. The 2011 escapement looks like a shift in the trend of increased escapements over the past couple of years. The preliminary 2011 forecast of marine survival is 1.08%.

West Coast Vancouver Island

There are two indicator stocks in WCVI: Robertson Creek Hatchery and Carnation Creek. Both are located in DFO Statistical Area 23. In 2011, preliminary escapement to Robertson Creek Hatchery is estimated at about 47,000; somewhat higher than expected but still below recent year averages. Escapement to the Carnation Creek indicator system is under review. Preliminary estimates of escapement to other WCVI systems suggest escapement at about recent year averages. However, the overall abundance of WCVI coho was low given the relatively limited harvest of these populations relative to historic periods. Therefore, the status of WCVI coho remains low to moderate at best.

Johnstone Strait and Mainland Inlet

The Keogh River plays an important role as the wild coho indicator stock for the upper Johnstone Strait Area. Smolt production in 2010 was around 61,000, slightly higher than the long term average of 58,000. Preliminary indications from the resulting adult escapement in 2011 are that marine survival has declined below 2%, much lower than the last few years. Smolt production from the Keogh in 2011 of approximately 90,000 was significantly higher than the long term average and may buffer the returns in 2012 if the marine conditions continue to be poor.

The marine survival indicator for Area 13 is the Quinsam River hatchery. Most Coho moved into the Quinsam and upriver earlier this year, during the flood levels of late September/early October, after which migration slowed. The preliminary adult estimate of approximately 5,600 Coho returning to the Quinsam River is lower than the past two years, but similar to 2008 and 2007 escapements. The jack component is proportionally comparable to 2010. Average adult body size is slightly smaller than the norm, while fecundities are marginally higher. Spawning ended approximately two weeks earlier this year.

Preliminary extensive escapement reports for coho are also indicating abundances lower than both 2009 and 2010. At this time it is still too early to provide an indication of stock status.

Johnstone Strait Chum

Objectives and Overview

The Johnstone Strait chum fisheries primarily target chum that spawn in Johnstone Strait, Strait of Georgia, and Fraser River areas. In order to improve the management of Johnstone Strait chum fisheries and to ensure sufficient escapements, a 20% fixed exploitation rate strategy was implemented in 2002 for Study Area Chum in Johnstone Strait. This year constituted the 9th year of the fixed exploitation rate harvest strategy. Of the 20% exploitation rate, 16% is allocated to the commercial sector; the remaining 4% is set aside for the First Nations and recreational harvesters, and to provide a buffer to the commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the chum return.

For commercial fisheries, the pre-season fishing schedule was developed based on expectation of effort, exploitation levels by gear group, and historical run timing (peak estimated as October 9th). The fishing schedule was developed to achieve the commercial allocation sharing guidelines of 77% for seine, 17% for gill net and 6% for troll. Adjustments to the fishing plan are made in-season, if warranted.

Based on the Pacific Salmon Treaty chum salmon agreement, commercial chum fisheries in Johnstone Strait will be suspended when an abundance estimate of less than 1 million chum salmon migrating through Johnstone Strait is identified.

In 2011, the Area B (seine) and Area D (gill net) were competitive derby fisheries.

The Area H (troll) fleet was managed using an effort based individual transferable effort (ITE) demonstration fishery for the 4th year (2008 - 2011). A total of 325 boat-days were modeled to correspond to the troll share of the harvest rate described above, and two time periods were defined to spread the catch over a 33 day period. Each Area H licence holder was assigned three boat-days in period 1 and two boat-days in period 2. Boat-days from each period could be transferred to other licence holders within each period but not between periods. A maximum of one third of the total number of boat days in period 1 could be carried over to fishing period 2, provided that day was not fished. Subareas 13-6 and 13-7 (Deepwater Bay area) were closed to commercial fishing on weekends and holidays.

Chum catch and release information from all fisheries can be found in Table 39.

First Nations

First Nations fisheries for chum were not restricted. The preliminary estimated catch by First Nations in the Johnstone Strait area is 9,880 chum salmon.

Marine Recreational

The marine recreational daily limits for chum are 4 per day and a possession limit of 8. The total recreational catch in Johnstone Strait, Areas 11, 12 and 13, was estimated at 5,000 chum. The peak of the effort coincided with the annual Brown's Bay chum derby which took place on the weekend of October 22 and 23, 2011. The total catch during the derby was 1,082 chum. This year, there was no creel survey in the month of October when the majority of the chum salmon fishing effort occurs in Area 13.

Non-Tidal Recreational

There is anecdotal information of limited recreational chum fisheries in non-tidal waters in the Johnstone Strait area, but at this time, overall effort and catch is unknown.

Commercial

The commercial chum fisheries in Johnstone Strait were divided into two fishing periods; September 28 to October 10 and October 12 to October 30. The total commercial chum catch from Johnstone Strait during chum directed fisheries is estimated at 720,833 pieces. The total chum catch from all commercial fisheries that took place in 2011, including retention of chum during sockeye directed fisheries, is estimated at 751,760 pieces.

There was a general requirement to apply selective fishing techniques, including area and gear restrictions and the mandatory use of revival tanks in all commercial fisheries. Catch monitoring included requirements for catch reporting and mandatory logbooks.

A description of each fishery is provided below:

Area B Seine

In 2011, there were two commercial seine openings for chum salmon in portions of Areas 12 and 13. The openings took place on October 5 for 12 hrs and October 17 for 10 hrs. The first opening was originally scheduled for October 4 but was postponed by one day because of strong winds. The chum catches for

the first and second openings were estimated at 228,046 pieces and 283,900 pieces respectively. A total catch of 511,946 chum was estimated for both fisheries.

Area D Gillnet

In 2011, there were three 41 hour commercial gill net openings for chum salmon in portions of Areas 12 and 13. The first opening took place from 16:00 hours on September 29 to 09:00 hours on October 1 followed by a second opening from 16:00 hours on October 12 to 09:00 hours on October 14. The third gill net opening was scheduled from 16:00 hours on October 23 until 09:00 hours on October 25. The estimated chum catches for the Area D gill net fisheries were 17,779 pieces, 49,955 pieces and 34,503 pieces respectively; for a total estimated catch of 102,237 pieces.

Area H Troll

In 2011, the Area H troll ITE demonstration fishery was divided into two fishing periods: September 28 to October 10 (period 1) and October 12 to November 5 (period 2). The first commercial troll fishing period proceeded as scheduled. However, the second fishing period was closed on October 26 because of an in-season run size downgrade of Fraser River chums. The second fishing period was then re-opened from November 2 to November 5 when Fraser River chums were upgraded above the threshold of 916,000. The chum catch for the first fishing period was 34,398 pieces and 72,252 pieces for the second fishing period, with a total chum catch of 106,650 pieces. Total effort for the Johnstone Strait fishery was 339 boat days.

Table 27 Johnstone Strait Commercial Catch By Date and Gear Type

Gear Type	Fishery Dates	Effort	Catch
B - Seine	Oct 5	95	228,046
	Oct 17	98	283,900
D - Gill net	Sep 29-Oct 1	378	17,779
	Oct 12-Oct 14	516	49,955
	Oct 23-Oct 25	410	34,503
H - Troll	Sep 28-Oct 10	155	34,398
	Oct 12-Nov 5	184	72,252

Table 28 Johnstone Strait Fisheries (Area 12 and 13)

Gear Type	Total Catch	% of catch	J.S. Allocation Plan
Area B	511,946	70.0%	77%
Area D	102,237	14.2%	17%
Area H	106,650	14.8%	6%
Total Catch:	720,833		

Nimkish River

At the time of this report, chum assessments on the Nimkish River have not begun. Conditions for monitoring chum returns have been compromised with continued rain events through end of October and Early November. Nimkish River hatchery will continue to capture brood stock for the enhancement program

Stock Status

Mixed Stocks

The main components of the Inside South Coast (ISC) chum return was expected to be both Fraser and non-Fraser stocks. These stocks are typically dominated by 4 year old fish which out-migrated to the ocean in 2008. It was quite apparent that other salmon species that also out-migrated in 2008 encountered good productivity and improved survivals (pinks and coho returns in 2009, and Fraser sockeye returns in 2010). The pre-season expectation for ISC Chum suggested low to near target returns to the area.

The Johnstone Strait test-fishery provided timing and abundance information of the 2011 return which is important for assessing the performance of the 20% fixed exploitation rate strategy implemented in the Johnstone Strait fisheries. It also provided an index of abundance that was used to determine the likelihood of whether the abundance of returning chum is over the 1.0 million critical abundance level required to continue with commercial openings. Catch per unit effort in the test fishery was relatively strong and it was determined that the ISC index of abundance was likely above the 1.0 million critical level. Age composition derived from the test-fishery and commercial samples demonstrated a very high contribution of the typically dominant 4-year old brood component. The samples also demonstrated that the size of the fish was significantly smaller than average (~3 lbs lower than average). The larger CPUE in the test fishery and the small size of the returning adults may indicate that good survivals during the 2008 outmigration of the juveniles were combined with subsequent poor marine conditions and possible density dependence during the rest of the ISC chum salmon's marine residence. Preliminary information on escapements and catches to date suggest returns were average to above average in many Non-Fraser populations. In-season information is still being collected and analyzed regarding total stock size.

Terminal Returns

Most summer run chum returns in Area 12 have shown replacement to improved return abundance relative to parental broods in 2007. This is likely attributed to the improved survival encountered by the smolts that out-migrated in 2008.

It is still too early to assess the status of fall run chum in the Johnstone Strait Area. Preliminary information indicates returns are below average for a variety of systems within the area. Initial observations on the Nimkish River indicate low abundance of returning chum but better than the poor returns observed in recent years. The assessment of the Nimkish system will continue into late December.

Fraser River Chum

Objectives and Overview

Chum salmon return to the Fraser River from September through December, with the typical peak of migration through the lower river occurring from mid- to late-October. Spawning locations are

predominately located in the Fraser Valley downstream of Hope, B.C., with major spawning aggregations occurring within the Harrison River (including Weaver Creek and Chehalis River), the Stave River, and the Chilliwack River. No spawning locations have been identified upstream of Hells Gate.

The escapement objective for Fraser River chum is 800,000. This objective was exceeded from 2001 to 2008. Escapements in 2009 and 2010 did not meet the escapement goal, with approximately 460,000 and 550,000 returning to spawn in those years, respectively.

General Overview of Fisheries

Fraser River chum are typically harvested in Johnstone Strait, in the Strait of Georgia, in Juan de Fuca Strait, in U.S. waters of 7 and 7A, as well as in the Fraser River.

Within the Fraser River, chum-directed fisheries include: First Nations FSC fisheries; recreational fisheries; and commercial fisheries. In recent years, significant conservation measures have been implemented in-river during the Fraser River chum migration period in order to protect co-migrating stocks of concern (Interior Fraser coho and Interior Fraser steelhead). Depending on the fishery, these measures have included both time and area closures, as well as gear restrictions. These conservation measures have had a significant impact on commercial fisheries in particular, resulting in very limited fishing openings.

Catch data from all chum fisheries can be found in Table 40.

First Nations

FSC gill-net fisheries commenced October 8th (below Mission) and October 14th (above Mission) following closures to protect co-migrating Interior Fraser coho. The estimated catch from all fisheries below Sawmill Creek to December 16 is 22,376. There were no economic opportunity fisheries above the Port Mann bridge in 2011. Economic opportunity fisheries did take place below the Port Mann bridge with Musqueam and Tsawassen in which 4,888 was harvested. ESSR harvests are ongoing for 2011. As of December 16 there have been 50,867 chum reported harvested through ESSR fisheries.

Recreational

In 2011, some of the major Fraser River watershed recreational salmon fisheries impacting Chum Salmon were assessed, including significant salmon fisheries occurring in the lower Fraser River mainstem and the Chilliwack River (a tributary to the Fraser River in the lower Fraser Valley).

Although some restrictions on chum retention (October 27 to October 31 inclusively) were put in place throughout the Fraser watershed in 2011, assessments still took place in many areas due to angling pressure on other salmon species.

The lower Fraser River mainstem recreational fishery was open to the retention of chum salmon from July 16th to October 26th and from November 1st to December 31st (daily limit of 2). In 2011, this mainstem fishery was assessed from July 16th to October 15th; preliminary estimates of 32 chum were kept and 829 released. The Chilliwack River recreational fishery was open to the retention of chum salmon from July 1st to October 15th. The Chilliwack River fishery was assessed from September 1st to November 15th in 2011; preliminary estimates are not yet available.

The Harrison River, Stave River and Nicomen Slough recreational fisheries were originally open to the retention of chum salmon year round. However, due to the low returns in the Fraser River, there was no retention of chum permitted from October 27th to October 31st; these tributaries were re-opened to chum retention on November 1st. In 2011, no assessment was conducted on the Stave River fishery; however, the Nicomen Slough/Norrish Creek fishery was assessed from October 7th to November 30th.

In total, for assessed recreational fisheries occurring in the Fraser River in 2011, preliminary estimates of 32 chum were kept and 829 chum were released, as the assessment ended on October 15th. Catch estimates are currently not available.

Commercial

The Fraser River chum test fishery at Albion operated every other day from September 3rd until October 18th, and then every day from October 19th until November 30th. The total number of chum caught for this year was 2,882 fish.

Commercial fisheries in the lower Fraser River (below Mission) were closed from September 6th to October 7th to protect Interior Fraser coho. Further restrictions on commercial fisheries were in place until late October to protect Interior Fraser steelhead. Two Area E (Gill Net) commercial openings took place in Area 29 during the 2011 fishing season. Fisheries occurred on November 3 and 7 for a total estimated harvest of 35,282 chum salmon.

Stock Status

The run-size of chum returning to the Fraser River is estimated in-season with a Bayesian model based on Albion test fishing catch. Test fishing at Albion began very poorly in contrast to test and commercial fishing in Johnstone Strait. DNA samples taken in the Johnstone Strait test fishery between September 15 and October 15 showed a weekly contribution of Fraser chum of between 36% and 56%. Chum returns through Johnstone Strait tracked in the 3 to 4 million range.

The assessment of the Fraser chum run size was also confounded by unusually small chum this year which may have reduced the catchability in the test fishery in the Fraser. To help evaluate the degree to which the small body size of the chum affected Albion catch, an additional 6" panel was added to the standard 6.5" net on Saturday, October 15.

Other approaches for examining the size selectivity of the Albion chum net were explored. The relationship between historical spawner lengths at Harrison and lengths of chum caught at Albion was used to develop a size selectivity curve for the Albion chum net. Preliminary results from this analysis showed that although the catchability of the Albion chum net was somewhat reduced due to the small size of fish observed this year, this effect was not large enough to appreciably change the current estimate of run size.

The first in-season estimate of run size of Fraser chum was on October 24th and was 544,000 (80% confidence interval of 349 K to 783 K), with an estimated 50% migration date of October 19th.

The body size of chum in both Johnstone Strait and the Fraser River continued to decrease throughout the season. Based on this trend, the size-selectivity curve developed for Albion during the second week of October (which had previously been applied to the average body size of chum observed for the whole season) was applied to average lengths of chum caught at Albion on a weekly basis. This revised analysis

revealed that the ongoing decrease in chum body size did impact catch rates at Albion, beginning in the third week of October.

To compensate for this effect, the daily catches at Albion were increased beginning on October 16th by approximately 50% prior to performing the in-season run size estimate.

The result of this adjustment, in conjunction with the addition of several more days of test fishing information, was that the run size increased substantially from the previous estimate.

The next in-season estimate of run size of Fraser chum on October 31st was 972,000 (80% confidence interval 561 K to 1,500 K), with a peak date of October 30. This is much later than the normal timing observed in recent years (average peak date from 1998-2010 is October 18).

The final in-season estimate of run size (provided on November 14th) was 763,000, with a 50% migration date of October 24th. This peak date is nearly a week later than the 1998-2010 average peak date of October 18th.

Fraser River chum salmon return to numerous spawning locations in the lower Fraser River. Spawning escapement is assessed annually for five of the largest chum producing systems as well as for a number of smaller tributaries. Spawning escapement for Fraser River chum over the last 10 years has trended downwards, particularly since 2007. In 2009 and 2010, estimated escapement was less than the 800,000 escapement goal. Spawning assessment programs for the current year are ongoing and estimates are currently not available.

Strait of Georgia Chum

Objectives and Overview

Strait of Georgia chum fisheries consist of terminal opportunities for chum returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies consist of monitoring and assessing stocks (escapement and returning abundance) with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

Area 14

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum rivers. The Qualicum River is often referred to as the 'Big' Qualicum River, to better distinguish it from the Little Qualicum River. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three river systems. The escapement goals for the three river systems are 60,000 for Puntledge River, 130,000 for Little Qualicum River, and 100,000 for Qualicum River, adding up to an overall escapement goal of 290,000 chum not including enhancement facility requirements (about 10,000 chum bringing the total escapement goal to 300,000). For 2011 preliminary escapement estimates indicate the Puntledge, Qualicum and the Little Qualicum rivers will achieve their target escapements.

This fishery has a specific harvest strategy, implemented since 1981. The strategy consists of limited early harvest prior to escapement occurring. The allowable early chum harvest is calculated from 65% of the predicted surplus (terminal return run size minus escapement of 300,000 and buffer of 100,000. The buffer safeguards against errors in forecast stock abundance. The surplus within the 100,000 buffer and remaining 35% of the surplus may be harvested provided that escapement targets have been achieved. Since 2002, Puntledge River stock returns have been above average resulting in terminal fisheries focusing on this slightly earlier timed stock. In 2011 seine, gill net, and troll fisheries took place in Area 14.

In 2011, the total return of Chums to Area 14 systems far exceeded pre-season expectations. The 2011 Area 14 pre-season forecast predicted a chum return of between 275,000 to 413,000. The preliminary estimate of total return (catch plus escapement) to the three key Area 14 systems, the Qualicum River (100k esc target), the Little Qualicum River (130k) and the Puntledge River (60k) is 800,000.

Commercial fisheries commenced in portions of Area 14 on October 31 with a gill net opening targeting Puntledge River hatchery chum stocks. The fishing area expanded on November 6 to include those portions of Area 14 from French Creek North to Deep Bay. This opening included commercial gill nets, seines and trollers targeting chum salmon returning to the Little Qualicum and Big Qualicum rivers.

Fishing closed to both seines and gill nets on December 2. The estimated commercial chum catch in Area 14 to November 29 is 416,687 for seines and 59,300 for gill nets. There was limited effort in the troll fishery with an estimated catch of 120 chums.

Commercial fisheries commenced in portions of Area 14 with an Area D gill net opening from October 31 until November 02 targeting Puntledge River hatchery chum stocks. Area H troll opened on November 04 until further notice in the same area as the Area D gill fishery. The next gill net fishery opened November 5 with the fishing area expanded on November 6 to include those portions of Area 14 from French Creek North to Deep Bay targeting chum salmon returning to the Little Qualicum and Big Qualicum rivers. The first seine opening occurred November 6-7. The gill net fishery that opened November 5 was continued until November 14 at which time the gill net fishery was extended until further notice. The seine fishery reopened on November 13 and 14 and again on November 18 until further notice. Currently (Nov.25) fishing remains open to both seines and gill nets. Fishing effort at this time is minimal.

Chum catch and release information from all fisheries can be found in Table 39.

Area 16

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserter and Skwawka rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured. Fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2011.

Area 17

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River hatchery (supplementation is on a sliding scale), where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 60,000. There were no fisheries in Area 17 in 2011.

Area 18

This fishery is directed primarily at Cowichan River stocks, however, Goldstream chum are also harvested. Fishery openings in mid to late November are limited to Satellite Channel in order to minimize impacts on the earlier timed Goldstream stocks. Chemainus River stocks could also be impacted if the fisheries are earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter and information from a test fishery. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Mid Vancouver Island (MVI) Chum Subcommittee. The overall escapement goal for the Cowichan River is currently 160,000 Chum counted by the DIDSON counter. There were no fisheries in Area 18 in 2011.

For 2011, based on pre-season expectations for Cowichan chums and fisheries in other areas (particularly Area 14), commercial fisheries in Area 18 were anticipated. The Area 18/19 seine test fishery in conjunction with the DIDSON fish counter provide timely in-season stock information regarding chum returns to the Cowichan system. A weekly conference call was held with the Cowichan Fisheries Roundtable Harvest Committee to discuss stock status and potential fishing opportunities. As November 25 Cowichan chum escapement was 105,000. Escapements will be monitored until December 02. No fisheries in Area 18 are anticipated in 2011.

Area 19

This fishery is directed primarily at Goldstream River stocks although some Cowichan River chum salmon are also harvested. Fishery openings set for mid to late November are limited to the portion of Saanich Inlet (Sub area 19-8) which is outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream chinook and coho stocks.

Fisheries are planned in-season based on escapement estimates and a test fishery. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000. There were no fisheries in Area 19 in 2011.

Chum catch and release information from all fisheries can be found in Table 39.

First Nations

The preliminary estimated catch by First Nations in the Strait of Georgia is estimated to be approximately 2,296 chum; additional catch data is currently being compiled.

Recreational

The recreational creel survey extends from the marine area of Discovery Passage, (outside of Campbell River) to Saanich Inlet. The majority of recreational effort directed at chum salmon occurs in the

Discovery Passage area. The total creel catch estimate for the recreational fleet in the Strait of Georgia area is approximately 19 kept and about 54 released. Note that Area 13 estimates are included with Johnstone Strait chum estimates, section 8.

Tidal recreational fisheries are subject to the normal daily and possession limits (daily limit four per day/possession eight) and are open throughout the area. Occasionally recreational in-river fisheries occur where surpluses or target escapements will be met. These fisheries occur almost exclusively where enhancement facilities are present.

Strait of Georgia, Johnstone Strait, and Juan de Fuca Strait Tributaries

Recreational anglers were allowed some opportunity to harvest chum salmon in the Strait of Georgia, Johnstone Strait and the Strait of Juan de Fuca in 2011. In all areas anglers were restricted to the use of barbless hooks and there was a minimum size limit of 30 cm. Some rivers have closed areas such as below falls, in areas where salmon hold while waiting for more favourable migrating conditions, or near hatchery facilities. The Qualicum River is restricted to fly fishing only from September 1st until October 15th. The Little Qualicum River is restricted to fly fishing only from September 1st until November 30th. The Puntledge River below the B.C. Hydro Diversion Dam is restricted to fly fishing only all year. Retention of chum salmon by recreational anglers was permitted as follows:

- Nanaimo River upstream of the Cedar Bridge to Boswell Road from November 1st to November 30th with a limit of 2 chum per day.
- Little Qualicum River from October 1st until November 30th with a daily limit of 1 per day. On November 8th the fishery was extended until December 31st and the limit was raised to 2 per day.
- Puntledge and Courtenay rivers from October 1st until November 30th with a daily limit of 2 chum.
- Qualicum River from October 1st until November 30th with a daily limit of 1 chum salmon.

Commercial

Strait of Georgia commercial chum fisheries for seine, gill net and troll were conducted between October 31 and December 1. The total commercial chum catch from Strait of Georgia is estimated at 446,000 pieces (see table 31 below). A description of each fishery is provided in the following table.

Table 29 Strait of Georgia Commercial Chum Catch by Date and Gear Type

Fishery Date	Gear type	Area	Effort (boat days)	Catch
Oct. 31-Nov.02	Gill Net	14	140	15,000
Nov. 04-17	Troll	14	7	120
Nov. 05-08	Gill Net	14	225	21,500
Nov.09-13	Gill Net	14	159	17,900
Nov 14-20	Gill Net	14	51	4,900
Nov. 06-07	Seine	14	91	253,000
Nov. 13-14	Seine	14	83	121,000
Nov. 18-20	Seine	14	10	12,000

Stock Status

Historically, chum returns have been highly variable relative to brood year escapements. An average to below average chum return to the Strait of Georgia was forecast for 2011. The forecast was based on below average brood year escapements (primarily 2007) and anticipated average to low survival. However, favorable conditions were noted during the 2008 ocean entry year, as observed by the 2010 Fraser River sockeye return.

Conditions for returning chum migration and spawning were good with water flows ample for most of the season. Spawning escapements continue to be monitored and are currently being compiled. To date, returns have been below forecast and below target (Table 32). Generally, preliminary escapements are within the forecast range, with the notable exception of Cowichan River which was much lower than both the Target Escapement and the Expected range.

Two marine test-fisheries were conducted, one off the Cowichan River and the other adjacent to the Goldstream River. The Cowichan seine test-fishery commenced on October 19th and continued until November 14th for a total of 5 fishing days. Test catches totaled 4022 chum and 17 coho. The Goldstream River (Saanich Inlet) seine test-fishery commenced on October 25th and continued until November 21st for a total of 5 days. Test catches totaled 4039 chum and 1 coho. Each test fishing day generally consists of six sets; all captured fish were released.

Spawning escapements continue to be monitored and are currently being compiled.

Table 30 Strait of Georgia Preliminary Spawning Escapements

Stock	Target Escapement Target	2011 forecast Expected range	Preliminary 2011 Escapement
Jervis Inlet	110K	40K – 60K	42K
Mid-Island	300K	275K – 413K	304K
Nanaimo	63.5K	41K – 61.5K	62K
Cowichan	160K	287.2K – 430.8K	100K
Goldstream	15K	25.1 – 37.6K	35K

West Coast Vancouver Island Chum

Objectives and Overview

Commercial chum salmon fisheries normally occur from late September to early November in WCVI fishing areas in years of chum abundance. The majority of chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21), and in Nootka Sound and Tlupana and Esperanza Inlets (Area 25). During the past few years there have been limited-fleet gill net assessment fisheries in Barkley Sound (Area 23), Clayoquot Sound (Area 24), Nootka Sound and Esperanza Inlet (Area 25). Commercial fisheries target wild chum stocks returning to local streams, and enhanced chum stocks from Nitinat and Conuma hatcheries.

Table 31 Southwest Vancouver Island Chum Conservation Unit Preseason Forecast for 2011

Location	Management Area	2011 Forecast	Escapement Target
Nitinat	21/22	169,000	325,000
Barkley	23	61,000	150,000
Clayoquot	24	79,000	100,000
Nootka	25	163,000	210,000
Kyuquot	26	93,000	180,000
SWVI CU Total		565,000	965,000

With the exception of Nitinat and Tlupana Inlet where hatchery stocks dominate adult returns, WCVI chum fisheries are managed to between 10% and 20% harvest rate. Fishery managers consider run timing, fishing effort and fleet distribution when implementing in-season management measures. In-season management measures, such as limiting fishing effort to one or two days per week, are implemented to ensure that target harvest rate objectives are not exceeded.

Area D and Area E commercial gill-net fleets, and the Area B commercial seine fleet target WCVI chum. Seine opportunities generally occur once surplus to escapement and hatchery brood requirements have been identified for Nitinat Lake, Nitinat River and Nitinat hatchery.

Commercial seine fisheries took place for Nitinat chum stocks 2011. A sufficient abundance was identified according to the process outlined in the 2011/12 Southern B.C. Salmon Integrated Fisheries Management Plan.

There have been limited-fleet gill net fisheries in Esperanza Inlet (Area 25) and Barkley Sound (Area 23) since 2004. A limited-fleet assessment fishery was initiated for Clayoquot Sound (Area 24) in 2007. All of these fisheries operated in 2011 based on a moderate pre-season forecast for chum abundance. The Esperanza and Nootka fisheries were curtailed when it became apparent that chum run-sizes for several river systems were lower than anticipated.

First Nations Food, Social and Ceremonial (FSC) and Treaty Domestic Allocation fisheries for chum salmon occur primarily in terminal areas. Excess Salmon to Spawning Requirements (ESSR) fisheries were conducted by the Ditidaht First Nation at Nitinat Lake targeting Nitinat hatchery surplus production. Economic Opportunity fisheries were carried out by the Hupacasath and Tseshah First Nations in upper Alberni Inlet and in the lower Somass River.

In-river recreational fisheries generally have low effort, but recently effort has increased in some terminal area rivers (i.e. Nitinat River). Directed effort and catch of chum in recreational marine fisheries off WCVI remains low.

Chum catch and release information from all fisheries can be found in Table 39.

First Nations

The Ditidaht First Nation conducts annual chum FSC fisheries and in years of higher chum abundance operates ESSR fisheries in Nitinat Lake and rack harvests at Nitinat hatchery.

Tseshaht and Hupacasath First Nations conducted chum catch monitoring and chum adult enumeration surveys in Alberni Inlet local river systems in 2011 under contract with DFO. Observations were reported weekly to DFO Stock Assessment and Resource Management staff.

WCVI and Economic Opportunity Fisheries

In 2011, an agreement was reached with the Hupacasath and Tseshaht First Nations for an economic opportunity fishery targeting chum. (Area 23). Their combined catch in the economic fishery was 4,065 chum. The remaining WCVI First Nations catch was reported as 12,968 chum. The total combined catch for the WCVI First Nations was 17,033 chum.

ESSR Fisheries

The Ditidaht First Nation was issued an ESSR Licence for chum at Nitinat Lake and Nitinat hatchery. The catch was 28,000 in the lake and 67,035 at the hatchery. The total catch for the ESSR fisheries was 95,035 chum.

The total catch for the three fisheries was 112,068 chum.

Recreational

The WCVI recreational fishery is open year-round with a limit of four (4) per day. Anglers are restricted to the use of barbless hooks and there is a minimum size limit of 30 cm. In offshore areas of WCVI, recreational anglers kept an estimated 124 chum and released 18 chum. In inshore areas recreational anglers kept an estimated 80 chum and released 60 chum.

There was also a chum fishery in the Nitinat River which was open from October 15 until December 31. The daily quota was two (2) chum per day and anglers were restricted to the use of barbless hooks. This fishery was not monitored by creel survey in 2011.

Commercial

Nitinat

There were seine and gill-net commercial fisheries in 2011 based on abundance in Nitinat Lake and River. The pre-season forecast for Nitinat chum was 169,000. The return is estimated at approximately 320,000. In previous years the Nitinat commercial chum fishery was the largest on the West Coast of Vancouver Island. This fishery targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st to November 15th. The fishery is managed to achieve a minimum escapement target of 225,000 and maximum escapement target of 325,000 chum salmon. The commercial TAC is based on the pre-season forecast which is updated in-season with information from the Nitinat Lake test-fishery and escapement information. Nitinat commercial chum catch totals are found in Table 32 and Table 33.

Barkley (Area 23), Clayoquot (Area 24) and Nootka/Esperanza (Area 25)

Commercial chum fisheries in Areas 23, 24 and 25 are typically managed using weekly in-season effort estimates. The harvest-rate approach is designed to achieve a harvest rate of 20% or less on all stocks in Nootka Sound and 10 to 15% in Esperanza Inlet, Clayoquot Sound and Barkley Sound chum stocks. In Tlupana Inlet, where hatchery stocks are predominant, exploitation rates may be higher in years of higher abundance.

In 2011, the Fisheries and Oceans Canada met with Area D Gill net advisors to discuss options for gill net assessment fishery openings on WCVI chum stocks considering low to moderate predicted abundance. Stock Assessment staff and contractors provided escapement counts for chum in Areas 23, 24 and 25.

The main objective of the gill net assessment fishery strategy is to provide advance indication of chum salmon abundance that could initiate larger fleet fisheries in Nootka Sound and Tlupana Inlet. In 2011, two days of full-fleet gill-net fishing was planned for the outer Nootka Sound area to augment the predictive capability of the gill-net fleet towards increased fishing opportunity on higher than predicted chum returns.

Gill net assessment fisheries took place in Areas 23, 24 and 25 (see table below) but there was an insufficient abundance of chum in these areas to trigger full-fleet gill net fisheries. Conuma River hatchery chum abundance was also insufficient to trigger a full-fleet gill net fishery in Tlupana Inlet.

Table 32 2011 Commercial Chum and Coho Gillnet Fisheries Summary (Nootka Sound, Esperanza Inlet and Barkley Sound)

Fishing Date in 2011	Nitinat (Area 20, 21, 121)			Barkley Sound (Area 23)			Clayoquot Sound (Area 24)			Nootka Sound (Area 25)			Esperanza Inlet (Area 25)		
	Effort (Vessels)	Chum Retained	Coho Retained	Effort (Vessels)	Chum Retained	Coho Retained	Effort (Vessels)	Chum Retained	Coho Retained	Effort (Vessels)	Chum Retained	Coho Retained	Effort (Vessels)	Chum Retained	Coho Retained
Sep-20										35	3,040	217			
Sep-27													2	1,812	26
Sep-28				4	807	92				33	3,231	352			
Oct-04				4	2,326	8				2	878	51	2	2,704	8
Oct-11				4	1,452	11	3	945	3	2	1,097	21	2	2,234	6
Oct-17	190	43,735	27(rd)												
Oct-18				2	472		3	400	1				2	899	0
Oct-20	108	10,958	17(rd)												
Oct-22	38	5,957	18(rd)												
Oct-25				3	378										
Nov-01				2	136										
Nov-08															
Totals	336	60,650	0	19	5,571	111	6	1,345	4	72	8,246	641	8	7,649	40

Table 33 2011 Commercial Chum Fisheries Summary (Nitinat)

Area B Seine Nitinat Catch

Fishing Date in 2011	Nitinat (Area 20, 21, 121)		
	Effort (Vessels)	Chum Retained	Coho Retained
Oct-20	25	81,126	
Oct-22	42	130,842	
Totals	67	211,968	0

Stock Status

Productivity of chum populations in the WCVI conservation unit (CU) was average to above average from 2001 to 2006. Low returns from 2007 to 2010 reflect a decline in productivity most likely related to lower than average marine survival rates, particularly during the 2005 to 2007 sea entry years. Chum returns in 2011 showed some improvement and were about average in SWVI but were still well below average in NWVI. Overall, chum escapement to most natural systems in the WCVI CU was approximately 30% lower than the long term average (1995-2005). In contrast, the Nitinat hatchery (Area 21/22) total return was estimated at about 630,000, which is close to the long term average (1995-2005) of 700,000. Although age data are not yet available, average returns in 2011 were likely influenced by improved returns of age 3 and 4 fish, resulting from the relatively good survivals from the 2008 and 2009 sea entry years.

All 2011 salmon escapement estimates from extensively surveyed WCVI streams (summarized in the Figure 9) are preliminary and represent peak live plus dead counts.

Figure 9 Escapement of WCVI Chum Stocks, by Catch Region (SWVI, NWVI) and Return Year (1995-2011)

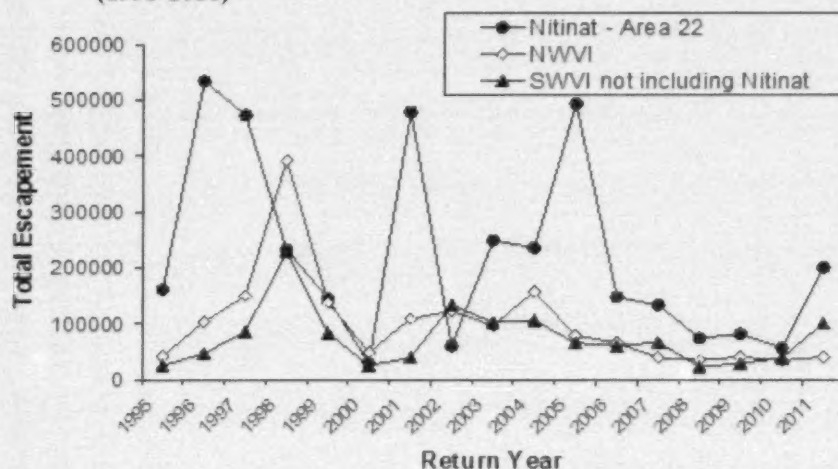


Table 34 Catches in Canadian Treaty Limit Fisheries, 1995 to 2011 (Preliminary).

Fisheries/Stocks	Species	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Stikine River (all gears)	Sockeye	55,619	50,543	48,049	33,614	59,237	101,209	85,890	84,866	58,784	17,294	25,600	27,468	38,055	43,803	65,559	74,281	53,467
	Coho	4,703	4,952	5,061	2,398	47	72	276	275	190	82	233	301	181	726	401	1,404	3,418
	Chinook-1g	2,283	1,766	2,330	7,860	10,576	15,776	18,997	3,857	1,396	1,362	1,480	3,086	2,916	2,164	4,483	2,471	1,646
	Chinook-jk	1,165	1,001	714	1,067	1,735	2,078	2,177	2,574	1,052	578	103	628	1,264	423	286	421	860
Taku River (commercial gill net)	Sockeye	24,012	20,211	11,057	19,445	16,564	21,093	21,932	19,860	32,730	31,053	47,660	28,009	20,681	19,038	24,003	41,665	32,640
	Coho	6,102	10,349	5,649	4,866	5,399	9,180	6,860	5,954	3,168	3,082	2,568	4,395	4,416	5,090	2,594	5,028	13,629
	Chinook-1g	2,333	4,658	7,031	1,184	862	7,312	7,534	2,074	1,894	1,561	1,458	1,576	908	1,107	2,731	3,331	1,577
	Chinook-jk	514	697	1,183	330	337	198	821	334	547	291	118	87	257	227	84	144	298
Areas 3 (1-4)* (commercial net)****	Pink	160,757	30,686	404,460	8,330	1,740,270	228,378	878,552	402,459	667,103	876,631	473,318	127,000	2,162,280	61,000	329,000	987,000	2,613,000
Area 1 (commercial troll)****	Pink	52,221	19,948	60,402	29,295	61,276	34,854	39,430	27,751	98,347	41,418	175,000	28,295	25,000	0	261,000	732,000	1,284,000
North Coast** (troll + sport)	Chinook	122,660 74,660+ 48,000	136,613 90,213+ 46,400	109,470 75,470+ 34,000	95,647 52,147+ 43,500	144,235 83,235 + 61,000	215,985 151,485 + 64,500	243,606 174,806 + 68,800	241,508 167,508 + 74,000	191,657 137,357 + 54,300	150,137 103,037 + 47,100	43,500	32,048	70,701	144,650	145,568	26,900	119,100
West Coast Vancouver Island (troll + sport + FN)	Chinook		137,660 79,123+ 52,698+ 5,839	125,488 53,191+ 68,775+ 3,381	143,81789,704+ 50,319+ 3794	139,150 87,921 + 46,229 + 5,000	145,970 103,978 + 36,992 + 5,000	195,791 143,614 + 52,177	210,875 168,837+ 42,038	179,706 152,677 + 27,029	165,824 134,308+ 31,516	102,266 78,302+ 23,964	89,139 64,216+ 24,923	28,540 6,906+ 21,634	10,855 6,678+ 4,177	59,796 53,396+ 6,400	3677 4+ 3,673	86,230 81,258+ 4,972
Fraser River Canadian Commercial Catch	Sockeye Pink	443,000 4,751,800	9,305,104 0	1,442,840	16,942 0	0 333,300	4,633,623 68,325	137,000 338,000	1,993,800 0	1,042,986 1,149,189	2,182,700 0	295,000 579,000	953,000 0	54,000 3,000	1,295,000 0	8,737,000 3,660,000	1,019,000 0	903,000 3,777,000
Fraser River U.S. Commercial Catch	Sockeye Pink	266,000 2,893,400	1,970,000 0	0 2,726,230	49,800 0	3,900 377,600	701,300 0	0 0	192,200 0	244,000 773,000	434,600 0	240,000 427,000	494,000	41,000 3,000	707,000 0	1,578,000 1,565,000	257,000 0	415,000 1,919,000
West Coast Vancouver Island (commercial troll)	Coho		458	0	369	1,424	2,399	5,989	0	0	0	0	0	0	0	0	761,000	1,345,000
Johnstone Strait (clockwork catch)***	Chum		62,510	510,708	298,931	494,944	800,363	787,226	1,089,100	1,026,029	700,000	236,000	161,000	41,411	1,820,000	104,593	101,971	269,000

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.

** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 6,000 ('91), 6,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT. CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.

*** CANADIAN CATCH INCLUDES COMMERCIAL, FSC AND TEST-FISH CATCHES IN AREAS 11-13 FOR 1991-94 INCLUSIVE, AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE. 2002-PRESENT, CATCHES FROM FISHERIES MANAGED TO FIXED HARVEST RATE OF 20%.

**** ALL PINK CATCHES FOR ALL YEARS (1995-2011) IN AREAS 3(1-4) AND AREA 1 HAVE BEEN UPDATED TO REFLECT FINAL ESTIMATES.

NOTE 1: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR. CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT).

NOTE 2: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

Table 35 Preliminary 2011 South Coast Sockeye Catch by Fishery and Area

SOCKEYE			Numbers		
	Gear	Fishery (Area)	Non-Fraser Kept	Fraser Kept	All stocks Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	244	0	0
	Area H Troll	Fraser Chum (29)	0	0	0
	Area H Troll	JST Chum (12,13)	0	0	9
	Area H Troll	Fraser Sockeye (12,13)	91	11,575	1,001
	Area H Troll	Fraser Sockeye (19, 29)	5	1,379	0
	Area H Troll	MM Chum (14)	0	0	0
	Area B Seine	Barkley Sockeye (23)	192,197	0	0
	Area B Seine	Nitinat Chum (21, 121)	0	0	0
	Area B Seine	JST Chum (12,13)	0	2	19
	Area B Seine	Fraser Sockeye/Pink (12,13)	26	96,992	99,294
	Area B Seine	Fraser Sockeye (20)	0	0	0
	Area B Seine	Fraser Sockeye/Pink (29)	0	627	3,442
	Area B Seine	MM Chum (14)	0	0	0
	Area B Seine	Fraser Pink (29)	0	0	0
	Area D Gillnet	Barkley Sockeye (23)	237,150	0	0
	Area D Gillnet	Barkley Chum (23)	0	0	0
	Area D Gillnet	Somass Chinook (23)	0	0	0
	Area D Gillnet	Clayoquot Chum (24)	0	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0	0
	Area D Gillnet	Nootka-Esperanza Chum	0	0	0
	Area D Gillnet	JST Chum (12,13)	0	4	1
	Area D Gillnet	Fraser Sockeye (11,12,13)	1,481	97,948	0
	Area D Gillnet	MM Chum (14)**			
	Area E Gillnet	Fraser Sockeye (29)	151	158,387	135
	Area E Gillnet	Fraser Chum (29)	0	0	19
	Area E Gillnet	Nitinat Chum (21, 121)	0	0	0
	Area E Gillnet	Chinook Demonstration Fishery	0	48	0
Total Commercial Catch			431,365	367,164	103,919
Recreational	Sport	Juan de Fuca (19,20)	2,409		1,424
	Sport	Strait of Georgia (14-19,28,29)	9,411		1,915
	Sport	Johnstone Strait (11-13)	5,454		1,809
	Sport	WCVI - Inshore (20W-27)	48,305	0	917
	Sport	WCVI - Offshore (121-127)	458		128
	Sport	Fraser River	0	31,790	62,745
Total Recreational Catch			48,763	49,061	68,938
First Nations FSC		Johnstone Strait	1,385	194,857	
		Strait of Georgia	28	43,158	
		WCVI	73,785	14,276	
		Fraser River	0	551,892	2,399
Total First Nations FSC Catch			75,179	813,994	2,399
First Nations EO		Johnstone Strait			
		Strait of Georgia			
		WCVI	72,400		
		Fraser River	0	75,697	3,997
Total First Nations EO Catch			72,400	75,697	3,997
First Nations ESSR		Johnstone Strait			
		Strait of Georgia			
		WCVI			
		Fraser River	0	0	0
Total First Nations ESSR Catch			0	0	
TOTAL - ALL FISHERIES			627,707	1,305,916	179,253

*Area B Seine released during Sockeye/Pink fisheries based on validated pink and sockeye encounter rates.

**Nov 24 Area 14 GN fishery ongoing

Table 36 Preliminary 2011 South Coast Pink Catch by Fishery and Area

PINK

Fishery	Gear	Fishery (Area)	Numbers **	
			Kept	Released
Commercial	Area G Troll	WCV AABM Chinook (23 - 27, 123 - 127)	175	787
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	144	47
	Area H Troll	Fraser Sockeye (12,13)	48,825	928
	Area H Troll	Fraser Sockeye (18, 29)	1281	245
	Area H Troll	MVI Chum (14)	0	0
	Area B Seine	Barkley Sockeye (23)	7,200	0
	Area B Seine	Nitinat Chum (21, 121)	0	0
	Area B Seine	JST Chum (12,13)	435	17
	Area B Seine	Fraser Sockeye/Pink (12,13)	3,722,467	87
	Area B Seine	Fraser Sockeye (20)	0	0
	Area B Seine	Fraser Sockeye/Pink (29)	716,227	19
	Area B Seine	MVI Chum (14)	0	0
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	14	11
	Area D Gillnet	Barkley Chum (23)	0	1
	Area D Gillnet	Somass Chinook (23)	0	0
	Area D Gillnet	Clayoquot Chum (24)	0	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Nootka-Esperanza Chum	0	8
	Area D Gillnet	JST Chum (12,13)	381	12
	Area D Gillnet	Fraser Sockeye (11,12,13)	26,587	489
	Area D Gillnet	MVI Chum (14)*	0	0
	Area E Gillnet	Fraser Sockeye	80,664	285
	Area E Gillnet	Fraser Chum (29)	2	6
	Area E Gillnet	Nitinat Chum (21, 121)	0	0
	Area E Gillnet	Chinook Demonstration Fishery	626	0
Total Commercial Catch			4,605,028	2,942
Recreational	Sport	Juan de Fuca (19,20)	55,124	14,556
	Sport	Strait of Georgia (14-18,28,29)	8,558	6,187
	Sport	Johnstone Strait (11-13)	30,722	20,927
	Sport	WCV - Inshore (20W-27)	3,305	1,291
	Sport	WCV - Offshore (121-127)	5,835	9,862
	Sport	Fraser River	55,945	114,723
Total Recreational Catch			159,489	167,526
First Nations FSC		Johnstone Strait	47,794	
		Strait of Georgia	1,119	
		WCV	1,389	0
		Fraser River	39,931	18,097
Total First Nations FSC Catch			90,233	18,097
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCV	0	0
		Fraser River	991,263	8,063
Total First Nations EO Catch			991,263	8,063
First Nations ESSR		Johnstone Strait		
		Strait of Georgia		
		WCV		
		Fraser River	3,353	0
Total First Nations ESSR Catch			3,353	0
TOTAL - ALL FISHERIES			5,849,366	196,628

*Nov 24 Area 14 GN fishery ongoing

** StockID estimates have not been applied to pink catch. Includes Fraser and non-Fraser stocks

Table 37 Preliminary 2011 South Coast AABM Chinook Catch by Fishery and Area AABM Chinook

			Numbers	
PST Regime	Fishery	Month	Kept	Released
WCVI-AABM	Area G Troll *	Oct-10	0	0
		Nov-10	0	0
		Dec-10	0	0
		Jan-11	0	0
		Feb-11	1 849	623
		Mar-11	875	41
		Apr-11	8 670	194
		May-11	41 239	1 301
		Jun-11	34 394	3 742
		Jul-11	15 619	516
		Aug-11	21 284	719
		Sep-11	0	562
Troll Total			123,930	7,698
Recreational	Sport	WCVI - Inshore (20W-27)	6 836	6 760
	Sport	WCVI - Offshore (121-127)	71 514	34 157
Total			78,350	40,917
First Nations	Johnstone Strait		-	-
	Strait of Georgia		-	-
	WCVI Offshore		4 289	-
	WCVI Inshore		-	-
	Fraser River		-	-
Total			4,289	0
All Total			206,569	48,615

*Oct'10-Sept'11

** includes release data from Sub-legal DNA sampling program

Table 38 Preliminary 2011 South Coast ISBM Chinook Catch by Fishery and Area

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
ISBM	Area G Troll	WCM Chinook	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	0	50
	Area H Troll	Fraser Sockeye (12,13)	0	165
	Area H Troll	Fraser Sockeye (18, 29)	0	32
	Area H Troll	MVI Chum (14)	0	0
	Area B Seine	Barkley Sockeye (23)	0	17
	Area B Seine	Nitinat Chum (21, 121)	0	0
	Area B Seine	JST Chum (12,13)	0	33
	Area B Seine	Fraser Sockeye/Pink (12,13)	40	2,299
	Area B Seine	Fraser Sockeye (20)	0	0
	Area B Seine	Fraser Sockeye/Pink (29)	63	2,744
	Area B Seine	MVI Chum (14)	0	0
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	217	272
	Area D Gillnet	Barkley Chum (23)	5	1
	Area D Gillnet	Somass Chinook (23)	7,760	45
	Area D Gillnet	Clayoquot Chum (24)	0	0
	Area D Gillnet	Tlupana Chinook (25)	13,861	0
	Area D Gillnet	Nootka-Esperanza Chum	0	20
	Area D Gillnet	JST Chum (12,13)	0	10
	Area D Gillnet	JST Sockeye (11,12,13)	9	77
	Area D Gillnet	MVI Chum (14)	0	6
	Area E Gillnet	Fraser Sockeye (29)	3,275	37
	Area E Gillnet	Fraser Chum (29)	171	67
	Area E Gillnet	Nitinat Chum (21, 121)	0	0
	Area E Gillnet	Chinook Demonstration Fishery	2,042	0
Total Commercial Catch			27,443	5,875
Recreational	Sport	Juan de Fuca (19,20)	12,860	10,303
	Sport	Strait of Georgia (14-18,28,29)	8,718	14,181
	Sport	Johnstone Strait (11-13)	19,033	8,999
	Sport	WCM - Inshore (20V-27)	59,612	17,998
	Sport	WCM - Offshore (121-127)	0	0
	Sport	Fraser River	18,072	1,154
Total Recreational Catch			116,295	52,635
First Nations FSC		Johnstone Strait	268	
		Strait of Georgia	2,379	17
		WCM	8,487	
		Fraser River	31,619	94
Total First Nations FSC Catch			42,753	111
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCM	14,307	
		Fraser River	7,853	239
Total First Nations EO Catch			22,160	239
First Nations ESSR		Johnstone Strait		
		Strait of Georgia*		
		WCM	14,511	
		Fraser River	5,947	0
Total First Nations ESSR Catch			20,458	0
TOTAL - ALL FISHERIES			229,109	58,860

*Number includes both adults and jacks. FSC & ESSR combined.

Table 39 Preliminary 2011 South Coast Coho Catch by Fishery and Area
COHO

Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI AABM Chinook (23 - 27, 123 - 127)	0	12,076
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12,13)	0	409
	Area H Troll	Fraser Sockeye (12,13)		378
	Area H Troll	Fraser Sockeye (18, 29)	0	5
	Area H Troll	MVI Chum (14)	0	0
	Area B Seine	Barkley Sockeye (23)	1	18
	Area B Seine	Nitinat Chum (21, 121)	0	74
	Area B Seine	JST Chum (12,13)	2	1,093
	Area B Seine	Fraser Sockeye/Pink (12,13)	493	13,751
	Area B Seine	Fraser Sockeye (20)	0	0
	Area B Seine	Fraser Sockeye/Pink (29)	292	1,679
	Area B Seine	MVI Chum (14)	0	6
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	288	489
	Area D Gillnet	Barkley Chum (23)	111	0
	Area D Gillnet	Somass Chinook (23)	94	0
	Area D Gillnet	Clayoquot Chum (24)	4	0
	Area D Gillnet	Tlupana Chinook (25)	5	4
	Area D Gillnet	Nootka-Esperanza Chum	681	2
	Area D Gillnet	JST Chum (12,13)	10	1,228
	Area D Gillnet	Fraser Sockeye (11,12,13)	0	1,454
	Area D Gillnet	MVI Chum (14)*	0	27
	Area E Gillnet	Fraser Sockeye (29)	3	50
	Area E Gillnet	Fraser Chum (29)	0	306
	Area E Gillnet	Nitinat Chum (21, 121)	0	62
	Area E Gillnet	Chinook Demonstration Fishery	0	4
Total Commercial Catch			1,984	33,115
Recreational	Sport	Juan de Fuca (19,20)	7,054	11,417
	Sport	Strait of Georgia (14-18,28,29)	736	2,529
	Sport	Johnstone Strait (11-13)	5,698	11,441
	Sport	WCVI - Inshore (20W-27)	40,207	32,292
	Sport	WCVI - Offshore (121-127)	24,240	78,946
	Sport	Fraser River	943	1,143
Total Recreational Catch			78,878	137,768
First Nations FSC				
		Johnstone Strait	950	
		Strait of Georgia	10,547	
		WCVI	6,015	
		Fraser River	1,152	122
Total First Nations FSC Catch			18,664	122
First Nations EO				
		Johnstone Strait		
		Strait of Georgia		
		WCVI	1,916	
		Fraser River	93	2,216
Total First Nations EO Catch			2,009	2,216
First Nations ESSR				
		Johnstone Strait		
		Strait of Georgia		
		WCVI	11,060	
		Fraser River	45,330	0
Total First Nations ESSR Catch			56,390	0
TOTAL - ALL FISHERIES			157,925	173,221

*Nov 24 Area 14 GN fishery ongoing

Table 40 Preliminary 2011 South Coast Chum Catch by Fishery and Area

Chum				
Fishery	Gear	Fishery (Area)	Numbers	
			Kept	Released
Commercial	Area G Troll	WCVI A&BM Chinook (23 - 27, 123 - 127)	228	122
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll	JST Chum (12, 13)	106,650	0
	Area H Troll	Fraser Sockeye (12, 13)	41	15
	Area H Troll	Fraser Sockeye (18, 29)	0	0
	Area H Troll	MVI Chum (14)	120	0
	Area B Seine	Barkley Sockeye (23)	0	535
	Area B Seine	Nitinat Chum (21, 121)	211,968	0
	Area B Seine	JST Chum (12, 13)	511,948	0
	Area B Seine	Fraser Sockeye/Pink (12, 13)	29,719	291
	Area B Seine	Fraser Sockeye (20)	0	0
	Area B Seine	Fraser Sockeye/Pink (29)	280	25
	Area B Seine	MVI Chum (14)	416,667	0
	Area B Seine	Fraser Pink (29)	0	0
	Area D Gillnet	Barkley Sockeye (23)	647	11
	Area D Gillnet	Barkley Chum (23)	6,571	0
	Area D Gillnet	Somass Chinook (23)	0	1
	Area D Gillnet	Clayoquot Chum (24)	1,345	0
	Area D Gillnet	Tlupana Chinook (25)	6	1
	Area D Gillnet	Nootka-Esperanza Chum	15,895	0
	Area D Gillnet	JST Chum (12, 13)	102,227	0
	Area D Gillnet	Fraser Sockeye (11, 12, 13)	1,157	154
	Area D Gillnet	MVI Chum (14)*	59,200	0
	Area E Gillnet	Fraser Sockeye (29)	28	0
	Area E Gillnet	Fraser Chum (29)	35,282	47
	Area E Gillnet	Nitinat Chum (21, 121)	60,650	0
	Area E Gillnet	Chinook Demonstration Fishery	1	0
Total Commercial Catch			1,569,766	1,213
Recreational	Sport	Juan de Fuca (19, 20)	319	79
	Sport	Strait of Georgia (14-18, 28, 29)	19	54
	Sport	Johnstone Strait (11-13)	5,000	146
	Sport	WCVI - Inshore (20W-27)	80	60
	Sport	WCVI - Offshore (121-127)	124	18
	Sport	Fraser River	32	829
Total Recreational Catch			5,574	1,182
First Nations FSC		Johnstone Strait	9,880	
		Strait of Georgia	2,296	11
		WCVI	12,968	
		Fraser River	22,375	8
Total First Nations FSC Catch			47,520	19
First Nations EO		Johnstone Strait		
		Strait of Georgia		
		WCVI	4,065	
		Fraser River	4,888	458
Total First Nations EO Catch			8,953	458
First Nations ESSR		Johnstone Strait		
		Strait of Georgia		
		WCVI	95,025	
		Fraser River	50,867	0
Total First Nations ESSR Catch			145,902	0
TOTAL - ALL FISHERIES			1,767,715	2,872

*Nov 24 Area 14 GN fishery ongoing

Table 41 Preliminary 2011 Southern BC Commercial Catch Totals by Gear and Area

Commercial total, all species

License Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
Area G Troll	WCVI AABM Chinook (23 - 27, 123)	244	0	0	12,076	175	787	226	132	123,930	7,698
Area H Troll	Fraser Chum (29)	0	0	0	0	0	0	0	0	0	0
Area H Troll	JST Chum (12,13)	0	8	0	409	144	47	106,650	0	0	50
Area H Troll	Fraser Sockeye (12,13)	11,667	1,001	0	376	48,825	926	41	16	0	165
Area H Troll	Fraser Sockeye (18, 29)	1,384	0	0	5	1,281	245	0	0	0	32
Area H Troll	MVI Chum (14)	0	0	0	0	0	0	120	0	0	0
Area B Seine	Barkley Sockeye (23)	192,197	0	1	18	7,200	0	0	535	0	17
Area B Seine	Nitinat Chum (21, 121)	0	0	0	74	0	0	211,968	0	0	0
Area B Seine	JST Chum (12,13)	2	19	2	1,093	435	17	511,946	0	0	33
Area B Seine	Fraser Sockeye/Pink (12,13)	97,019	99,294	493	13,751	3,722,467	87	29,719	291	40	2,299
Area B Seine	Fraser Sockeye (20)	0	0	0	0	0	0	0	0	0	0
Area B Seine	Fraser Sockeye (29)	827	3,442	292	1,679	716,227	19	280	25	63	2,744
Area B Seine	MVI Chum (14)	0	0	0	6	0	0	416,687	0	0	0
Area B Seine	Fraser Pink (29)	0	0	0	0	0	0	0	0	0	0
Area D Gillnet	Barkley Sockeye (23)	237,160	0	288	489	14	11	647	11	217	272
Area D Gillnet	Barkley Chum (23)	0	0	111	0	0	1	5,571	0	5	1
Area D Gillnet	Somass Chinook (23)	0	0	94	0	0	0	0	1	7,760	45
Area D Gillnet	Clayoquot Chum (24)	0	0	4	0	0	0	1,345	0	0	0
Area D Gillnet	Tlupana Chinook (25)	0	0	5	4	0	0	6	1	13,861	0
Area D Gillnet	Nootka-Esperanza Chum	0	0	681	2	0	8	15,895	0	0	20
Area D Gillnet	JST Chum (12,13)	4	1	10	1,228	381	12	102,237	0	0	10
Area D Gillnet	Fraser Sockeye (11,12,13)	99,429	0	0	1,454	26,587	489	1,157	154	9	77
Area D Gillnet	MVI Chum (14)	0	0	0	27	0	0	59,300	0	0	6
Area E Gillnet	Fraser Sockeye (29)	159,137	135	3	50	80,654	285	38	0	3,275	37
Area E Gillnet	Fraser Chum (29)	0	19	0	306	2	6	35,282	47	171	67
Area E Gillnet	Nitinat Chum (21, 121)	0	0	0	62	0	0	60,650	0	0	0
Area E Gillnet	Chinook Demonstration Fishery	48	0	0	4	626	0	1	0	2,042	0
TOTALS		799,118	103,919	1,984	33,115	4,605,028	2,942	1,559,766	1,213	151,373	13,573

Table 42 2011 Southern BC Recreational Catch Totals by Area

Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
Juan de Fuca (19,20)	2,406	1,424	7,054	11,417	55,124	14,556	319	76	12,860	10,303	NA	NA
Strait of Georgia (14-18,28,29)	9,411	1,915	736	2,529	8,558	6,167	19	54	8,718	14,181	NA	NA
Johnstone Strait (11-13)	5,454	1,809	5,698	11,441	30,722	20,927	5,000	145	19,033	8,999	NA	NA
WCVI - Inshore (20W-27)	48,305	917	40,207	32,292	3,305	1,291	80	60	59,612	17,998	6,836	6,760
WCVI - Offshore (121-127)	458	128	24,240	78,946	5,835	9,862	124	18	0	0	71,514	34,157
Fraser River	31,790	62,745	943	1,143	55,945	114,723	32	829	16,072	1,154	NA	NA
TOTAL	97,824	68,938	78,878	137,768	159,489	167,526	5,574	1,182	116,295	52,635	78,350	40,917

All totals are preliminary.

JDF includes all of 19 and a portion of Area 20 (20 SG).

WCVI Inshore contains a portion of 20W (West of Sherringham)

Table 43 2011 Southern BC First Nations Catch Estimates by Area

Fishery type	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook ISBM Kept	Chinook ISBM Released	Chinook AABM Kept	Chinook AABM Released
FSC	Johnstone Strait	196,223	0	950	0	47,794	0	9,880	0	268	0	-	-
	Strait of Georgia	43,196	0	10,547	0	1,119	0	2,296	11	2,379	17	-	-
	WCVI	88,061	0	6,015	0	1,389	0	12,968	0	8,487	0	4,289	-
	Fraser River	561,693	2,399	1,152	122	39,931	18,097	22,376	8	31,619	94	-	-
	TOTAL	889,173	2,399	18,664	122	90,233	18,097	47,520	19	42,753	111	4,289	0
EO	Johnstone Strait	0	0	0	0	0	0	0	0	0	0	-	-
	Strait of Georgia	0	0	0	0	0	0	0	0	0	0	-	-
	WCVI	72,400	0	1,916	0	0	0	4,065	0	14,307	0	-	-
	Fraser River	75,697	3,997	93	2,216	991,263	8,063	4,888	458	7,853	239	-	-
	TOTAL	148,097	3,997	2,009	2,216	991,263	8,063	8,953	458	22,160	239	0	0
ESSR	Johnstone Strait	0	0	0	0	0	0	0	0	0	0	-	-
	Strait of Georgia	0	0	0	0	0	0	0	0	0	0	-	-
	WCVI	0	0	11,060	0	0	0	95,035	0	14,511	0	-	-
	Fraser River	0	0	45,330	0	3,353	0	50,867	0	5,947	0	-	-
	TOTAL	0	0	56,390	0	3,353	0	145,902	0	20,458	0	0	0
All FN fisheries		1,037,270	6,396	77,063	2,338	1,084,849	26,160	202,375	477	85,371	350	4,289	0

Table 44 2011 South Coast Test Fishery Catches

Test-Fisheries	Sockeye retain	Sockeye release	Coho retain	Coho release	Pink retain	Pink release	Chum retain	Chum release	Chinook retain	Chinook release	GRAND TOTAL
Albion Chinook Gillnet	1,550	0	0	67	184	0	183	0	1,847	0	3,831
Albion Chum Gillnet	734	0	0	316	1,196	0	2,882	0	496	1	6,625
Area 12 Chum Seine	0	45	0	534	0	13,825	1,451	208,493	0	6	224,364
Naka Creek Sockeye Gillnet	2,491	0	0	36	616	0	25	0	5	4	3,177
Area 13 Sockeye Seine	5,265	112,595	0	187	837	88,223	3	493	0	217	207,820
Area 23 Sockeye Seine	1,506	6,569	0	2	0	0	3	8	0	11	8,099
Blinkhorn Sockeye Seine	4,783	87,982	0	654	626	204,345	1	1,517	0	481	300,389
Cowichan Chum Seine	0	0	0	17	0	0	265	3,757	0	0	4,039
Saanich Chum Seine	0	0	0	1	0	0	81	3,958	0	0	4,040
Nitinat Lake Chum Gillnet	0	0	65	0	0	0	7,239	0	15	2	7,321
Round Island Sockeye Gillnet	2,033	9	110	79	1,207	4	40	0	13	14	3,509
San Juan Sockeye Seine	7,061	15,253	0	1,517	1,553	75,631	0	72	0	389	101,476
San Juan Sockeye Gillnet	8,997	0	0	363	3,550	0	19	1	94	7	13,031
Whonnock Gillnet	4,308	61	0	153	3,743	157	84	1	1,257	9	9,773
Cottonwood Gillnet	3,209	32	0	65	1,932	3	17	1	169	52	6,480
Mission Gillnet	719	0	11	0	1,633	0	2	0	48	0	2,413
Qualark Gillnet	2,675	9	20	26	1,115	13	0	0	613	197	4,668
Area 29 Gulf Troll	726	0	0	6	541	266	0	0	5	19	1,563
Grand Total	46,057	222,555	206	4,023	18,733	382,467	12,295	218,301	4,562	1,409	910,608

**C. 2011 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF
RELEVANCE TO THE PACIFIC SALMON COMMISSION**

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The 2009 Pacific Salmon Treaty (PST) Agreement calls for abundance based management of the District 104 purse seine fishery. The agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye prior to Alaska Department of Fish and Game (ADFG) statistical week 31 (referred to as the treaty period). The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual inriver escapement, whichever is less.

The District 104 purse seine fishery opens the first Sunday in July; in 2011 the initial opening was July 3 (Week 28). The pre-Week 31 fishing plan for District 104 was based on the preseason Canadian Dept. of Fisheries and Oceans (DFO) forecast returns of approximately 523,000 Nass and 1,600,000 Skeena sockeye salmon.

In the 2011 treaty period (Alaska statistical weeks 28-30), 25,280 sockeye were harvested in the following: two 12-hour openings in Week 28; two 15-hour openings in Week 29; and two 15-hour openings in Week 30 (Table 45). A total of 29 purse seine vessels fished at some time in the district during the treaty period. In past years 60% to 80% of treaty-period sockeye have been of Nass and Skeena origin. Thus, we would anticipate that between 15,200 and 20,200 Nass and Skeena sockeye may have been harvested in the District 104 purse seine fishery during the treaty period. The final number of Nass and Skeena sockeye harvested, and the actual catch by stock, will not be available until catch, escapement, and stock composition estimates are finalized for the year.

Table 45 Catch and Effort in the Alaska District 104 Purse Seine Fishery, 2011

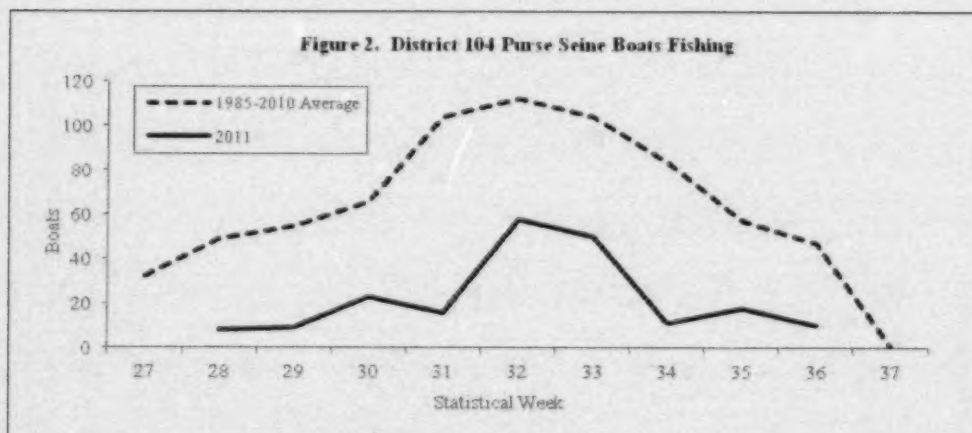
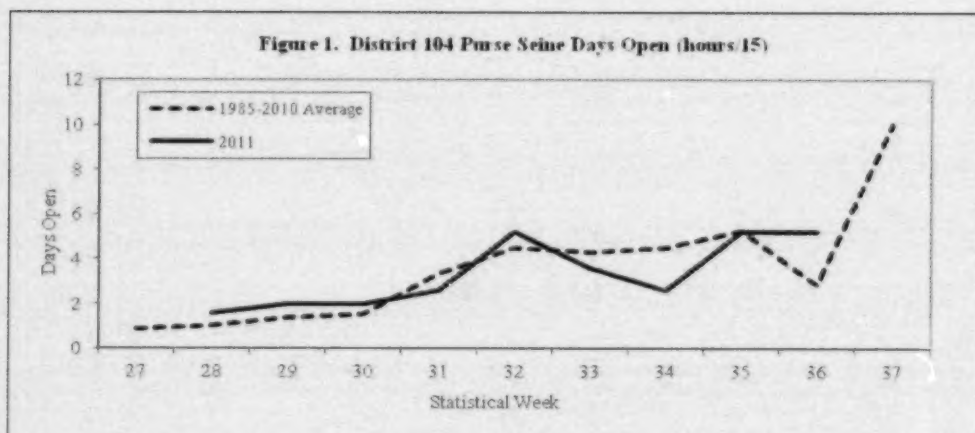
Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28	7/3	0	774	73	229	322	5	12
28B	7/7	0	1,356	308	1,439	4,899	4	12
29	7/10	0	4,099	1,616	13,212	7,752	5	15
29B	7/14	5	5,188	1,011	27,830	17,744	9	15
30	7/18	344	7,719	2,507	67,576	29,284	22	15
30B	7/22	234	6,144	1,132	44,501	7,746	5	15
31	7/26	527	37,917	2,451	154,636	14,880	16	39
32	7/31	822	54,387	5,302	417,142	21,676	44	39
32B	8/4	1,372	54,988	5,701	477,182	10,183	47	39
33	8/8	402	14,738	2,552	317,129	3,982	41	15
33B	8/12	359	8,353	2,243	304,280	4,922	23	39
34	8/16	116	2,212	828	111,268	2,518	10	39
34B	8/20	65	855	211	47,235	786	4	39
35	8/24	15	1,816	830	210,698	4,944	18	39
36	8/28	28	1,893	1,423	170,735	4,836	9	39
36B	9/1	confidential information - less than 3 boats fishing						39
37	9/5	confidential information - less than 3 boats fishing						39
Weeks 28-30		583	25,280	6,647	154,787	67,747	29	84
Weeks 31-36		3,706	177,224	21,638	2,222,062	69,369	69	405
Total		4,289	202,504	28,285	2,376,849	137,116	72	489

Since the Pacific Salmon Treaty was signed in 1985, the number of hours open, boats fishing and boat-days fished in the pre-Week 31 annex period in District 104 are down 55%, 58% and 83% respectively compared to the averages in the pre-treaty 1980-1984 period (Table 46). The total pre-Week 31 Treaty-period sockeye harvest is also down 41%. The seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and catch in District 104.

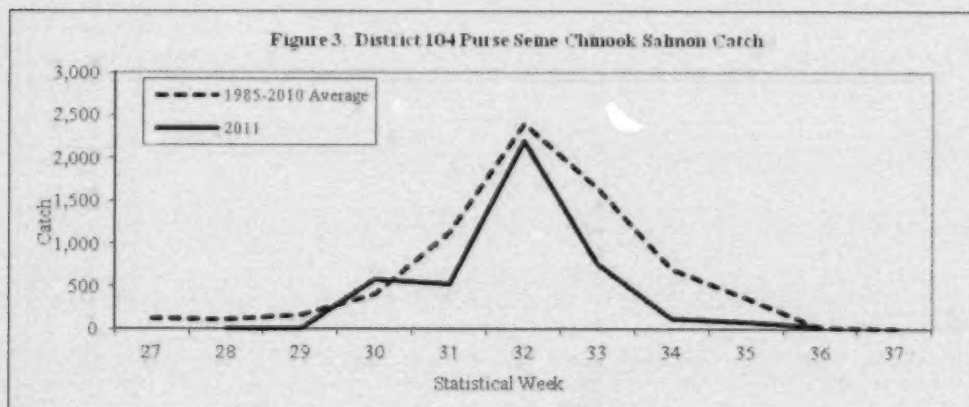
Table 46 Fishing Opportunity, Effort, and Sockeye Harvest Prior to Week 31 in the District 104 Purse Seine Fishery, 1980 to 2011

Year	Hours Fished	Boats Fishing	Fraction Days Fished (1d=15hrs)	Boat-Days Fished (Fraction Boats and Fraction Days)	Sockeye Harvest	Sockeye Catch per Boat-Day
1980	207	244	13.8	2,877	266,273	93
1981	132	212	8.8	1,108	185,188	167
1982	117	255	7.8	1,435	213,150	149
1983	108	241	7.2	1,211	170,306	141
1984	132	174	8.8	805	103,319	128
1985	84	141	5.6	502	100,590	200
1986	108	194	7.2	968	91,320	94
1987	90	134	6	457	72,385	158
1988	108	210	7.2	994	248,789	250
1989	84	135	5.6	438	157,566	360
1990	42	171	2.8	276	169,943	615
1991	41	134	2.7	243	98,583	406
1992	29	108	1.9	142	79,643	561
1993	45	171	3	343	163,189	476
1994	55	84	3.7	202	158,524	783
1995	58	109	3.9	218	71,376	328
1996	31	113	2.1	128	215,144	1,684
1997	56	159	3.7	409	572,942	1,402
1998	32	78	2.1	89	17,394	196
1999	30	38	2	44	7,664	174
2000	81	66	5.4	192	48,969	255
2001	50	95	3.3	182	203,090	1,115
2002	72	44	4.8	124	26,554	215
2003	52	40	3.5	97	84,742	875
2004	107	24	7.1	102	30,758	302
2005	68	38	4.5	93	35,690	382
2006	95	39	6.3	117	89,615	766
2007	50	68	3.3	136	112,135	824
2008	33	17	2.2	22	6,262	281
2009	72	38	4.8	95	15,971	168
2010	55	21	3.7	39	4,617	118
2011	84	29	5.6	77	25,280	329
Avg. 80-84	139	225	9	1,487	187,647	136
Avg. 85-09	63	95	4	256	110,902	500
% Change	-55%	-58%	-55%	-83%	-41%	268%

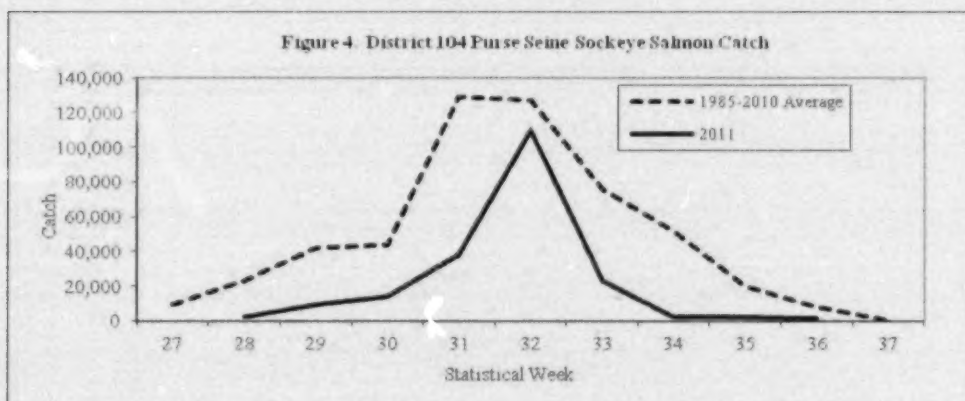
In the 2011 season, the District 104 purse seine fishery harvested 2,376,849 pink salmon, 202,504 sockeye, 137,116 chum, 28,285 coho, and 4,289 Chinook salmon. Catches of all salmon species were below average throughout the season. The number of days that the fishery was open was below the treaty period (1985-2010) average except in weeks 32 and 36 (Figure 1). The number of boats fishing was below average throughout the season (Figure 2).



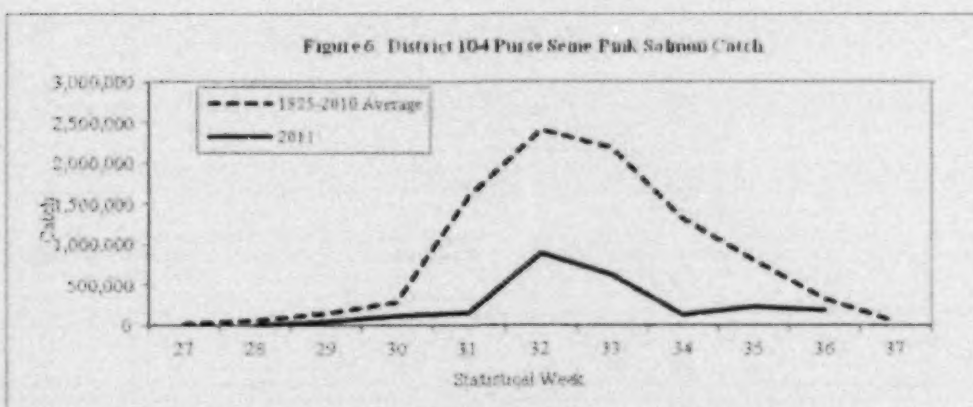
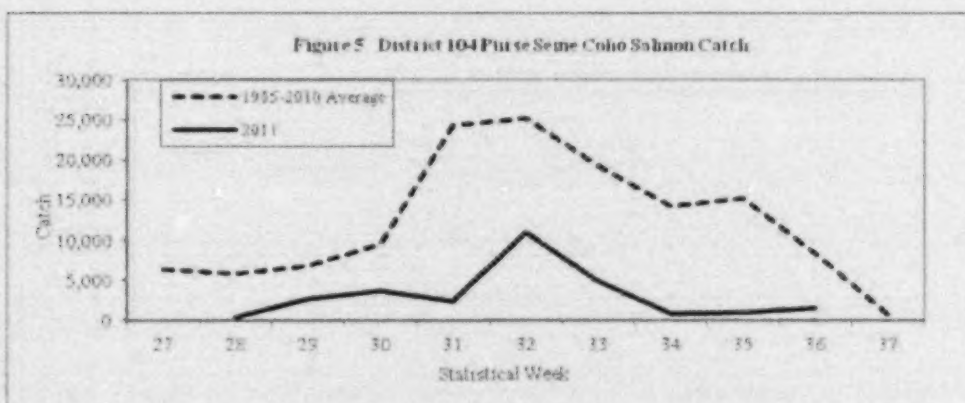
Chinook salmon catches in the District 104 purse seine fishery were below average in 2011 (Figure 3). The 2011 District 104 purse seine non-retention period for Chinook salmon lasted from the beginning of the season until the second opening in week 29.



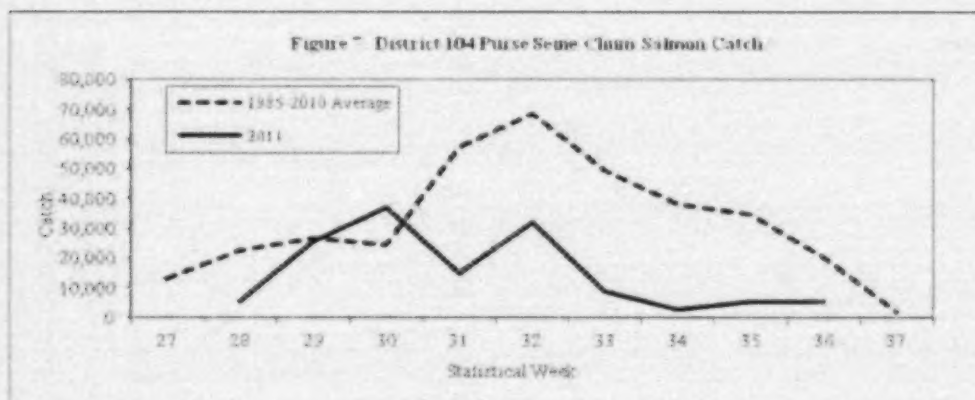
Sockeye salmon catches were below average throughout the season (Figure 4). The treaty period (week 28-30) sockeye catch was 25,280 while the total catch was 202,504.



Catches of coho and pink salmon were below average throughout the season (Figures 5-6).



With the exception of week 30 catches of chum salmon were below average (Figure 7).



District 101 Drift Gillnet Fishery

The 2009 PST agreement calls for abundance based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. For the 2011 season, DFO forecast a total return of 523,000 Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual inriver escapement, whichever is less.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June which was June 19. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the run strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

A total of 88,618 sockeye salmon were harvested in the District 101 drift gillnet fishery in 2011 (Table 47). The sockeye harvest was 67% of the 1985-2010 average of 131,885. The number of hours fished was below average. The total number of boats fishing during the 2011 season was 88, which is about 76% of the 1985-2010 average of 115. The final number of Nass River sockeye harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2011 season.

In past years approximately 70% of the District 101 gillnet sockeye harvest has been of Nass River origin. Thus, we would anticipate that approximately 62,000 Nass River sockeye may have been harvested in the District 101 gillnet fishery in 2011. Final numbers will not be available until the analysis is completed.

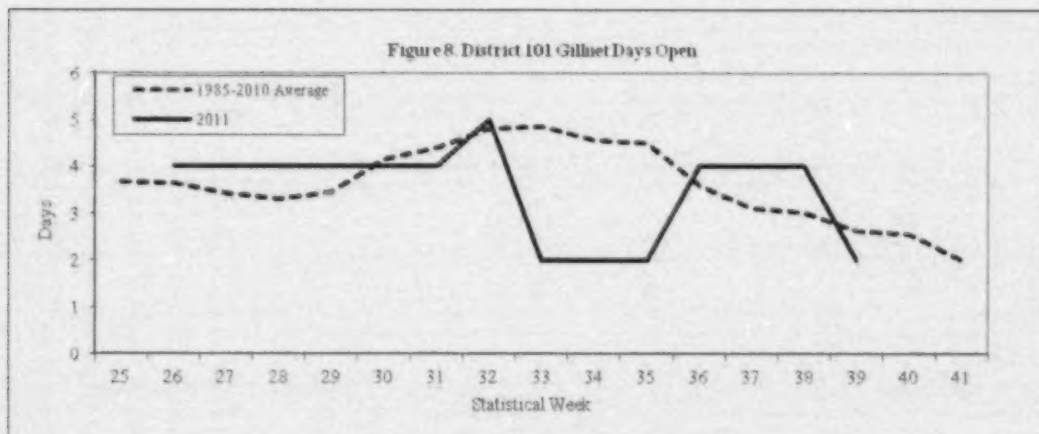
Table 47 Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 2011.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
26	19-Jun	671	8,853	90	33	8,544	58	96
27	26-Jun	456	21,319	232	2,625	14,988	60	96
28	3-Jul	160	10,013	1,131	24,852	53,055	56	96
29	10-Jul	175	9,290	1,341	52,712	66,677	61	96
30	17-Jul	63	8,686	1,899	60,164	68,788	64	96
31	24-Jul	55	8,564	1,716	43,269	57,842	67	96
32	31-Jul	41	16,143	3,488	52,996	19,197	63	120
33	7-Aug	18	3,821	1,454	32,129	5,452	45	48
34	14-Aug	1	671	1,003	17,407	3,923	37	48
35	21-Aug	1	384	2,194	14,794	6,937	22	48
36	28-Aug	7	700	4,419	23,965	15,553	40	96
37	4-Sep	5	63	3,010	7,372	8,819	35	96
38	11-Sep	9	110	6,396	3,497	9,823	37	96
39	18-Sep	0	1	249	8	329	3	48
Total		1,662	88,618	28,622	335,823	339,927	88	1,176
1985-2010 Avg.		1,474	131,885	46,504	525,896	305,068	115	1,344

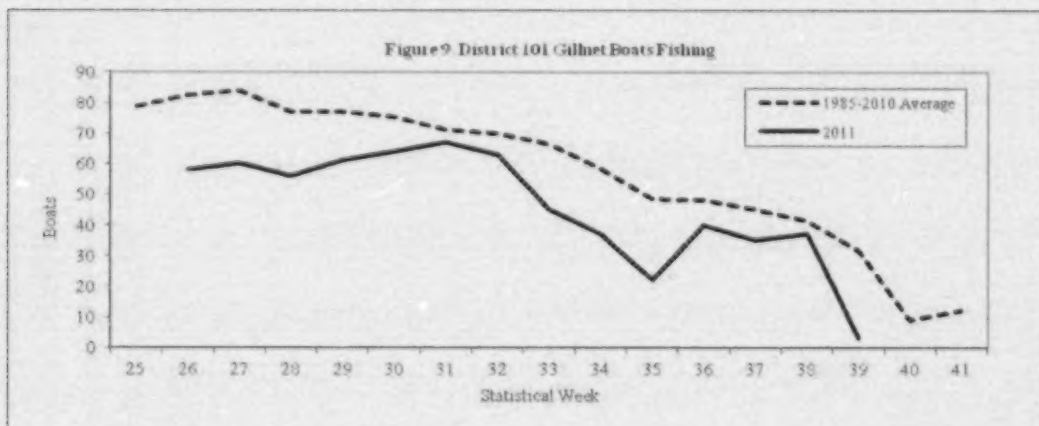
Table 48 Sockeye Harvest in the Alaska District 101 Gillnet Fishery, 1985 to 2011 and Comparison of Harvest and Effort (boats, hours, and boat-hours) between Statistical Weeks 26-35 when Sockeye Salmon are Most Abundant.

Year	Total Sockeye Harvest	Catch and Effort between Weeks 26-35			
		Sockeye Harvest	Boats	Hours	Boat-Hours
1985	173,100	159,021	153	1,032	157,865
1986	145,699	143,286	198	960	190,044
1987	107,503	106,638	170	615	104,519
1988	116,115	115,888	187	756	141,338
1989	144,936	130,024	176	1,023	180,016
1990	85,691	78,131	150	840	125,969
1991	131,492	123,508	130	984	127,920
1992	244,649	243,878	118	1,080	127,416
1993	394,098	390,299	148	1,032	152,733
1994	100,377	98,725	142	984	139,700
1995	164,294	151,131	128	1,008	129,024
1996	212,403	175,569	129	1,104	142,408
1997	169,474	152,662	128	1,008	129,024
1998	160,506	159,307	124	1,044	129,454
1999	160,028	158,268	118	1,032	121,776
2000	94,651	94,399	95	912	86,640
2001	80,041	62,129	73	1,020	74,445
2002	120,353	106,360	68	1,008	68,544
2003	105,263	96,921	68	1,104	75,058
2004	142,357	141,395	61	1,104	67,332
2005	79,725	75,875	69	1,104	76,162
2006	62,770	53,048	45	840	37,791
2007	66,822	50,642	54	1,032	55,717
2008	34,113	30,672	47	936	43,983
2009	69,859	69,325	62	1,080	66,948
2010	62,680	61,987	66	1,008	66,515
2011	88,618	87,744	85	840	71,380
Average 1985-2010	131,885	124,196	112	986	108,398

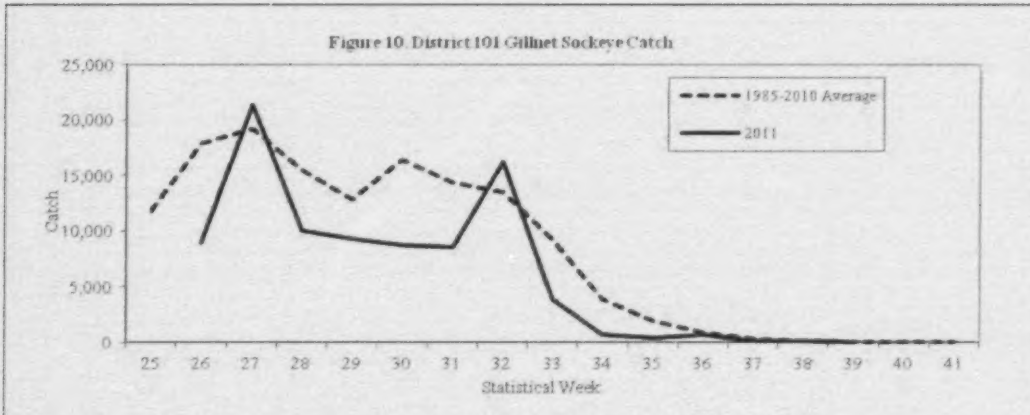
The District 101 gillnet fishery opened Sunday June 19 (Week 26). The fishery was open a slightly higher than average number of days early in the season (Figure 8). Under the Pink Salmon Management Plan, which establishes drift gillnet fishing time in District 101 in relation to District 101 purse seine fishing time when both gear types are concurrently harvesting the same pink salmon stocks, fishing time was reduced to two days a week in Statistical Weeks 33-35. Beginning in Week 36 (August 28) management was based on the strength of wild stock fall chum and coho salmon.



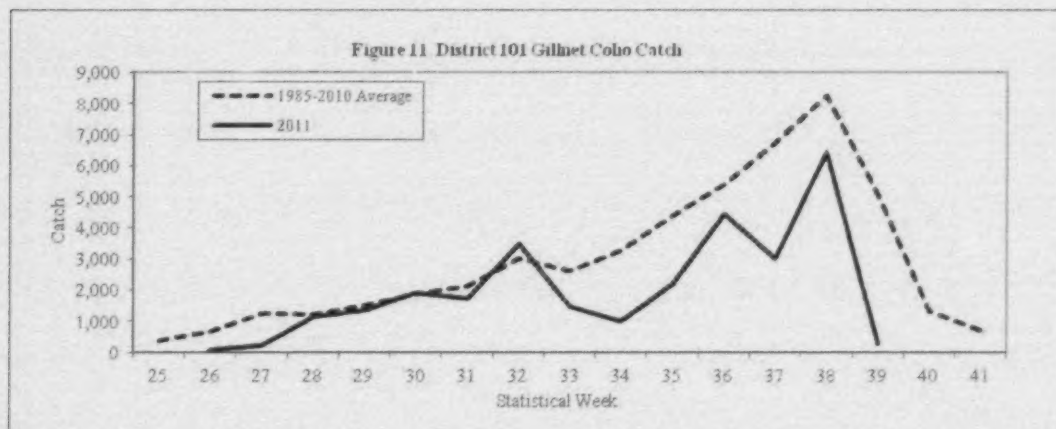
The number of boats fishing during weekly openings remains below average. (Figure 9).



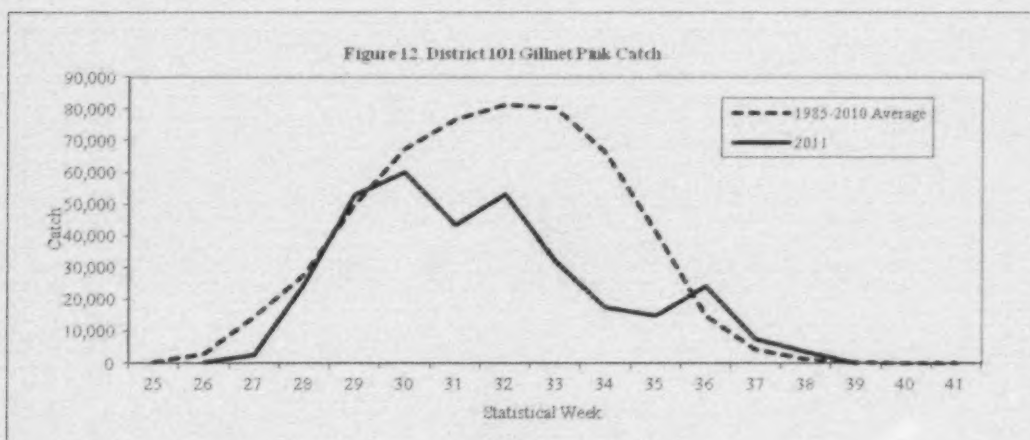
Catches of sockeye were below treaty period averages for most of the season (Figure 10). Sockeye harvest prior to the initiation of the Pink Salmon Management Plan in Week 30 was 49,475 fish, or about 56% of the total.



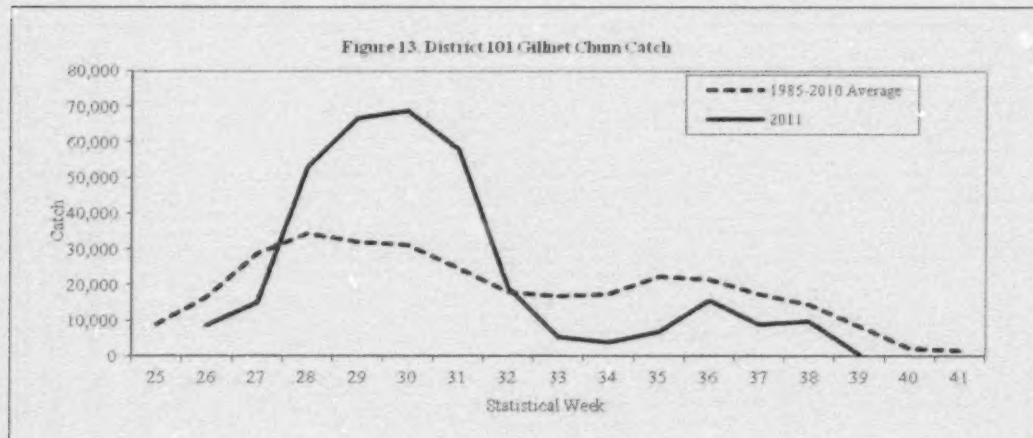
Coho catches were about average until early August after which they dropped to below average (Figure 11).



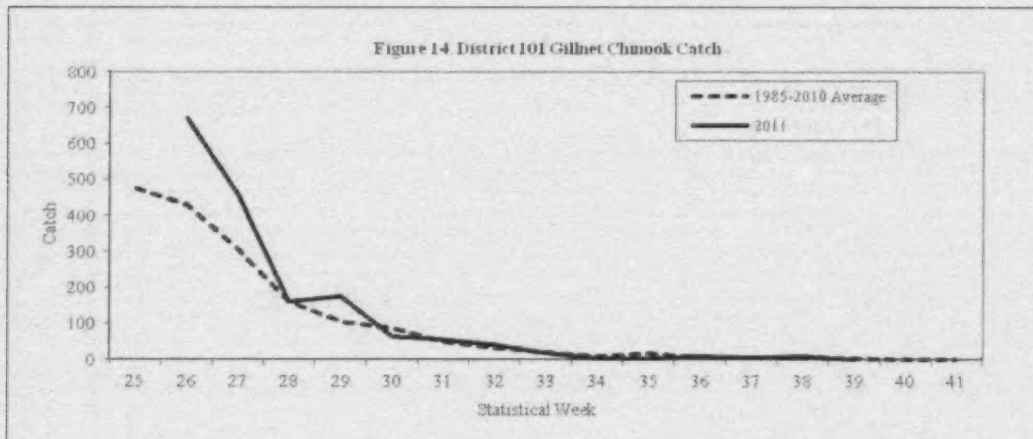
Pink salmon catches were below average for most of the season (Figure 12).



Chum salmon catches were above average early in the season but fell below average beginning in late July (Figure 13). Beginning on August 28 (week 36) the fishery was managed on the strength of wild stock fall chum and coho salmon returns.



Chinook salmon catches were above average early in the season (Figure 14).



Pink, Sockeye, and Chum Salmon Escapements

The total 2011 Southeast Alaska pink salmon escapement index of 14.3 million index fish ranked 12th since 1960, but was slightly below the recent 10-year average of 15.2 million. Biological escapement goals are in place for three sub-regions in Southeast Alaska and escapement goals were reached for all three sub-regions in 2011 (Table 49). On a finer scale, escapements met management targets for 14 of 15 districts in the region and for 44 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast sub-region includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The pink salmon harvest of 11.2 million in the Southern Southeast sub-region was only 46% of the recent 10-year average, but the escapement index value of 5.5 million was well within the escapement goal range of 3.0 to 8.0 million index fish.

Table 49 2011 Southeast Alaska Pink Salmon Escapement Indices and Biological Escapement Goals by Sub-Region (in millions). The total is slightly larger than the sum of all three sub-regions due to rounding of numbers.

Sub-region	2011 Pink Salmon Index	Biological Escapement Goal	
		Lower Bound	Upper Bound
Southern Southeast	5.5	3.0	8.0
Northern Southeast Inside	6.0	2.5	6.0
Northern Southeast Outside	2.7	0.75	2.50
Total	14.3		

Sockeye salmon returns throughout Southeast Alaska were generally strong in 2011. Escapement targets were met for 12 of the 13 sockeye salmon systems in Southeast Alaska with formal escapement goals. The Hugh Smith Lake adult sockeye salmon escapement was 22,000, which was above the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. McDonald Lake sockeye salmon were listed as a "stock of management concern" at the 2009 Board of Fisheries meeting and a new sustainable escapement goal of 55,000 to 120,000 sockeye salmon was adopted. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was estimated to be 113,000 fish in 2011, which was near the upper bound of the sustainable escapement goal range.

Escapement survey information for chum salmon index streams indicated that escapements of summer-run chum salmon through much of Southeast Alaska in 2011 were improved over recent years. In southern Southeast Alaska, runs are broken into summer and fall runs. The Southern Southeast chum salmon stock group is composed of an aggregate of 13 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 68,000 index spawners (based on the aggregate peak survey to all 13 streams). The index of 157,000 in 2011 was the third highest index value in the time series (Figure 15).

Fall chum salmon runs on Prince of Wales Island appeared to be strong overall and the escapement goal was easily met in Cholmondeley Sound—the one area in southern Southeast Alaska with a formal escapement goal for fall chum salmon. Fall chum salmon runs are monitored in Cholmondeley Sound through aerial surveys at Disappearance and Lagoon creeks. The escapement index of 93,000 was well above the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 16).

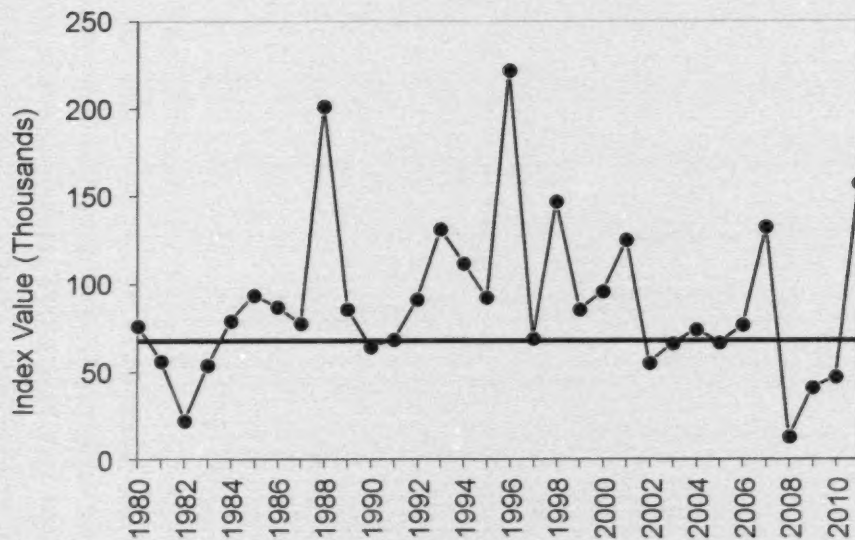


Figure 15. Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 68,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast sub-region, 1980-2011.

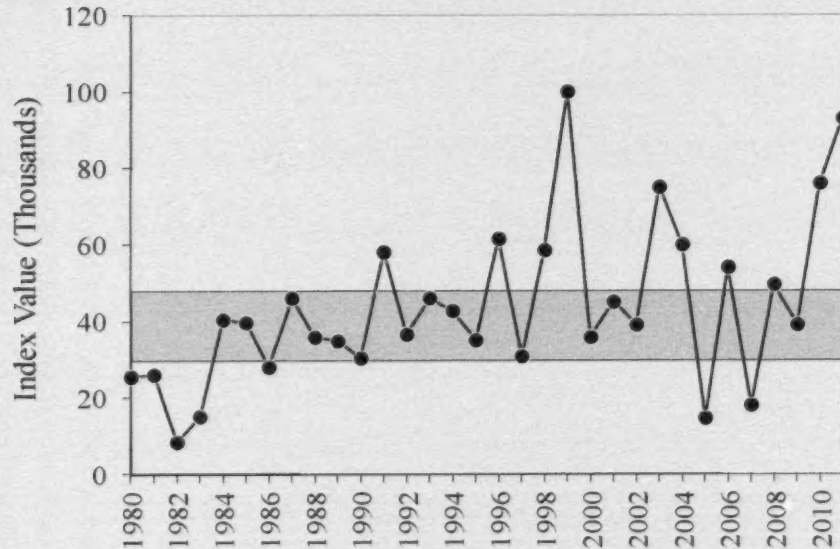


Figure 16. Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980-2011.

Transboundary Area Fisheries

Stikine River Area Fisheries

The 2011 Stikine River large Chinook preseason terminal run size forecast of 30,000, and inseason estimates of 18,800, were too low to allow a directed Chinook salmon fishery in District 108.

The 2011 Stikine River sockeye salmon return was expected to be below the previous 10 year average but larger than the 2010 return. The preliminary forecast for the total return to the Stikine River was 183,000 sockeye salmon. The 2011 forecast included approximately 82,200 Tahltan (48%), 43,200 enhanced Tuya (24%), and 51,600 wild mainstem sockeye salmon (28%). The Tuya return was the only return expected to be above average. Due to the near identical return timing of the Tahltan Lake and enhanced Tuya Lake stocks, any open fishing periods in District 108, and to a lesser extent District 106, were determined by the actual inseason abundance of the Tahltan Lake stock.

District 106 opened for the season with an initial two day opening on Monday, June 13. In order to help achieve the Stikine Chinook salmon escapement goal, District 108 remained closed for the initial opening.

Both Districts 106 and 108 opened for a two day opening on Monday June 20. This opening was extended by one day as on-the-grounds surveys of harvest indicated that the abundance of sockeye salmon was above average in District 106 and well above average in District 108.

Both districts opened on Sunday, June 26 for three days, extended by one day due to high sockeye abundance in both districts. An inseason assessment for Chinook salmon returning to the Stikine River of 21,200 large adults, which is lower than the preseason forecast of 30,000; this assessment resulted in no Total Allowable Catch of Stikine River Chinook salmon. Inseason assessment of Stikine River sockeye salmon decreased slightly from 183,000 to 175,000.

District 106 and 108 opened for three days on Sunday, July 3. Surveys on the fishing grounds indicated above average sockeye abundance and below average effort resulting in a one day extension of the opening.

Both fisheries opened for two days on Sunday, July 10 (week 29). This is the first of three weeks of McDonald Lake sockeye conservation measures. Under this plan, fishing time in District 106 was limited to no more than 48 hours.

Both District 106 and 108 opened for two days on Sunday, July 17. District 108 reopened mid-week for one day. Catches of pink and chum salmon harvest rates improved. The final run size estimate for Stikine River Chinook salmon was expected to be about 22,000 fish, which is lower than the preseason forecast of 30,000. The inseason estimate of sockeye salmon returning to the Stikine River was expected to be just under the preseason estimate of 183,000 fish.

Both districts opened for two days on July 24. This was the final week of McDonald Lake conservation measures. A mid-week one day opening for District 108 was announced from the grounds due to low effort, above average sockeye salmon catch rates in both districts, and a harvestable surplus in projected Stikine River sockeye salmon abundance.

During statistical weeks 32 through 35 (July 31-August 27), both Districts 106 and 108 were managed for pink salmon. In Districts 106 and 108, three day openings occurred in weeks 32 and 33 based on above average catch rates in week 31 and good parent year escapements. Catch rates were below average in week 33 for both districts with some improvements in District 106 for week 34. Improvements in pink salmon catch rates continued for both districts in week 35. However, due to poor pink salmon escapements to local

systems, no additional fishing time was warranted during the remainder of the pink salmon management period. During the 2011 season, the fishing effort was generally above the weekly ten year average effort in both districts throughout the pink salmon management period.

During statistical week 36 (August 28 – September 3) the management emphasis changed from pink salmon to wild coho salmon. The coho salmon harvest was below recent 10 years average in both Districts 106 and 108. The weekly wild coho salmon component of the harvest remained below average with a peak during week 38, two weeks later than average. During the coho management period, both districts had two-day openings except for statistical weeks 36 and 37, which were three-day openings. The 2011 gillnet season in both districts ended at noon on Tuesday, September 27.

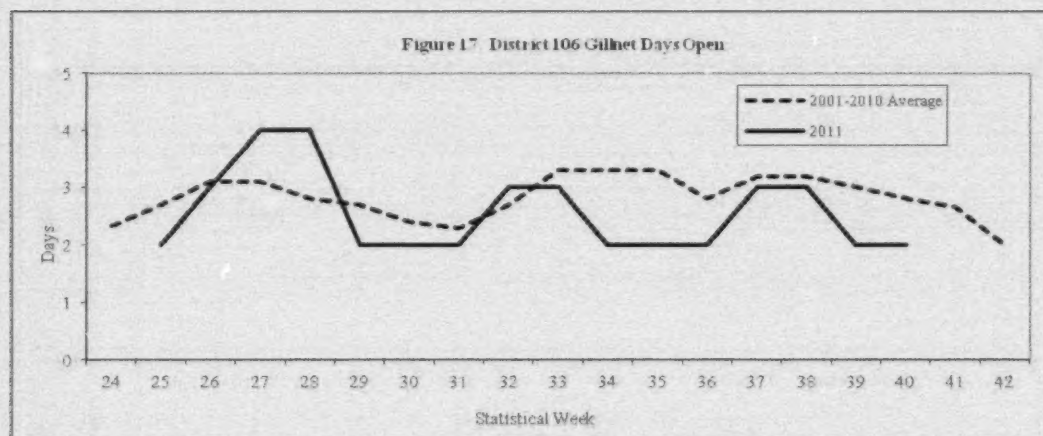
For the 2011 season, the number of gillnet vessels that fished in District 106 was slightly above average while the number of days the fishery was open was slightly below average (Figures 17 and 18). The 2011 harvest in the District 106 commercial gillnet fishery included 2,103 Chinook, 146,089 sockeye, 117,854 coho, 337,170 pink, and 158,096 chum salmon (Table 50). District 106 harvests of coho and chum salmon were below the 2001-2010 average while harvest of sockeye, pink and Chinook were above average (Figures 19-23). The final 2011 inseason estimate of Stikine River sockeye salmon harvested in District 106 was 32,900 or approximately 23% of the harvest. Enhanced sockeye from local releases (mostly Neck and Lake and Burnett Inlet) contributed approximately 5,600 sockeye (4%) to the District 106 harvest. An estimated 1,100 Chinook salmon in the District 106 harvest (52%) were of Alaskan hatchery origin. An estimated 59,000 coho salmon in the District 106 harvest were of Alaskan hatchery origin, 50% of the total coho salmon harvest.

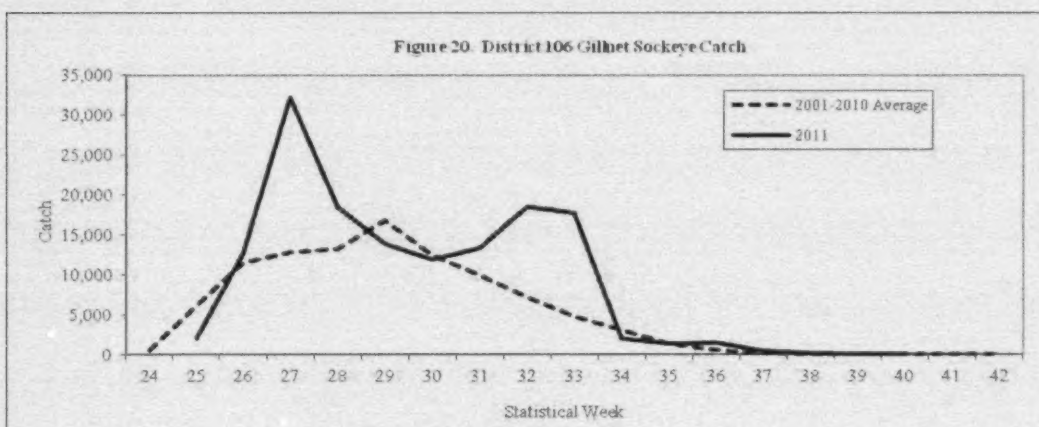
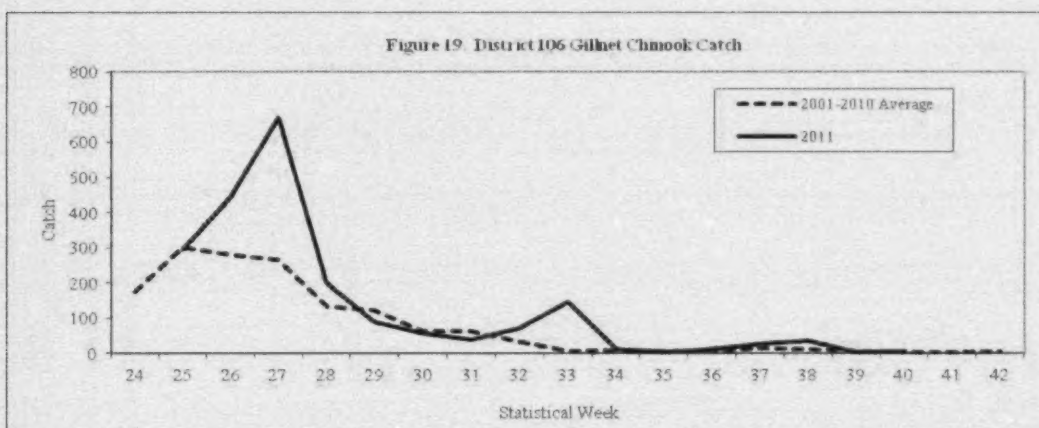
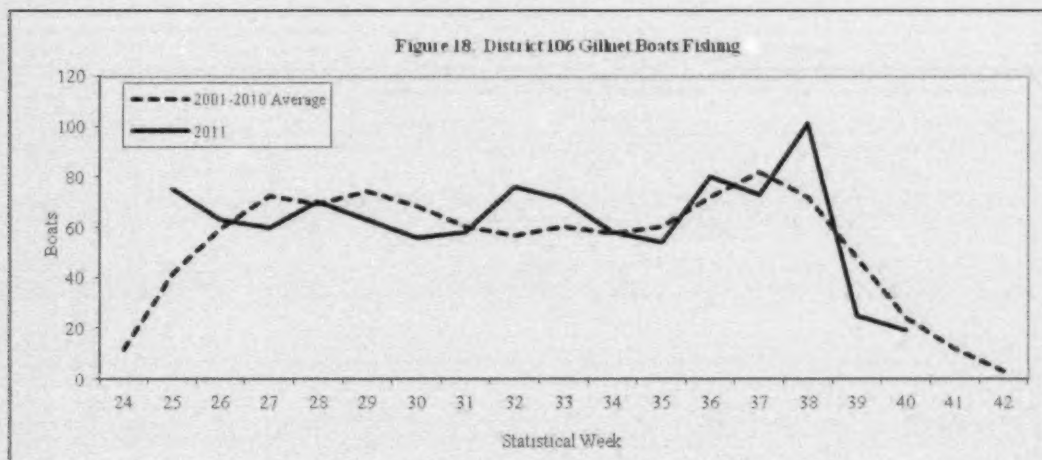
For the 2011 District 108 drift gillnet season the number of vessels fishing was above average while the number of days open were below average. Harvest in the fishery totaled 4,099 Chinook, 51,478 sockeye, 20,717 coho, 65,022 pink, and 142,526 chum salmon. The seasonal catch of sockeye, pink and chum salmon were above the ten year average while Chinook and coho catches were below average (Figures 24-30).

The District 108 fishery harvested an estimated 36,400 Stikine River sockeye salmon, 71% of the District 108 sockeye salmon harvest. The Alaska hatchery Chinook salmon contribution in District 108 was estimated at 2,700 fish, 65% of the total harvest. An estimated 11% (2,300 fish) of the District 108 coho salmon harvest was of Alaskan hatchery origin. The estimated harvest of Stikine River Chinook was 1,431 fish.

Table 50 Weekly Salmon Catch in the Alaskan District 106 Commercial Drift Gillnet Fisheries, 2011. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
25	13-Jun	294	2,050	3,551	53	673	75	2	150
26	20-Jun	445	12,689	6,795	1,262	2,247	63	3	189
27	26-Jun	669	32,120	18,690	10,370	6,569	60	4	240
28	3-Jul	200	18,465	15,347	13,975	19,853	70	4	280
29	10-Jul	89	13,836	7,923	13,878	24,095	63	2	126
30	17-Jul	55	11,844	5,253	21,488	17,097	56	2	112
31	24-Jul	37	13,290	4,774	34,170	19,553	58	2	116
32	31-Jul	71	18,455	6,364	48,062	12,828	76	3	228
33	7-Aug	146	17,749	6,640	71,611	6,575	71	3	213
34	14-Aug	12	2,061	2,954	31,349	2,235	58	2	116
35	21-Aug	3	1,355	3,696	27,082	5,298	54	2	108
36	28-Aug	11	1,474	7,868	32,897	7,402	80	2	160
37	4-Sep	27	472	9,353	15,886	13,990	73	3	219
38	11-Sep	35	218	14,991	14,747	17,802	101	3	303
39	18-Sep	3	10	2,011	278	1,025	25	2	50
40	25-Sep	6	1	1,644	62	854	19	2	38
Total		2,103	146,089	117,854	337,170	158,096	164	41	2,647
2000-2010 Average		1,375	100,291	151,590	316,215	205,964	159	50	2,894
2011 as % of Average		153%	146%	78%	107%	77%	103%	83%	91%





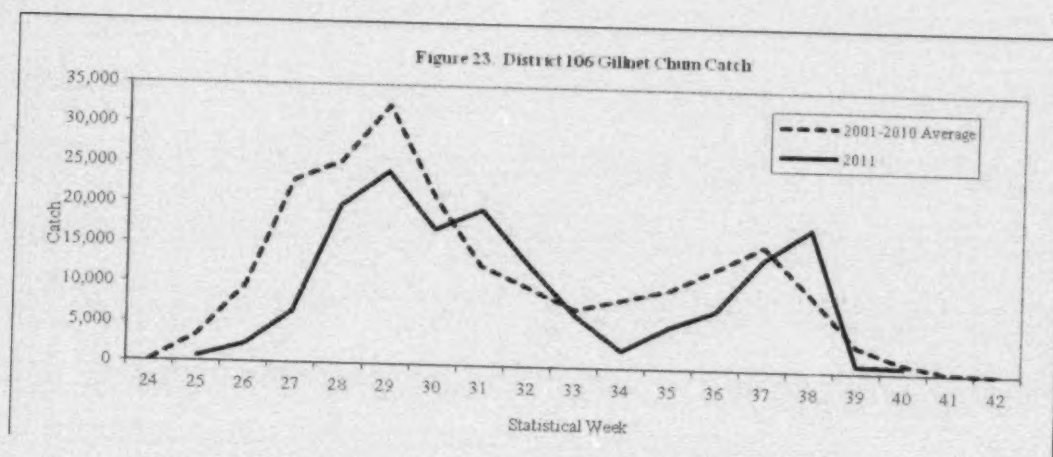
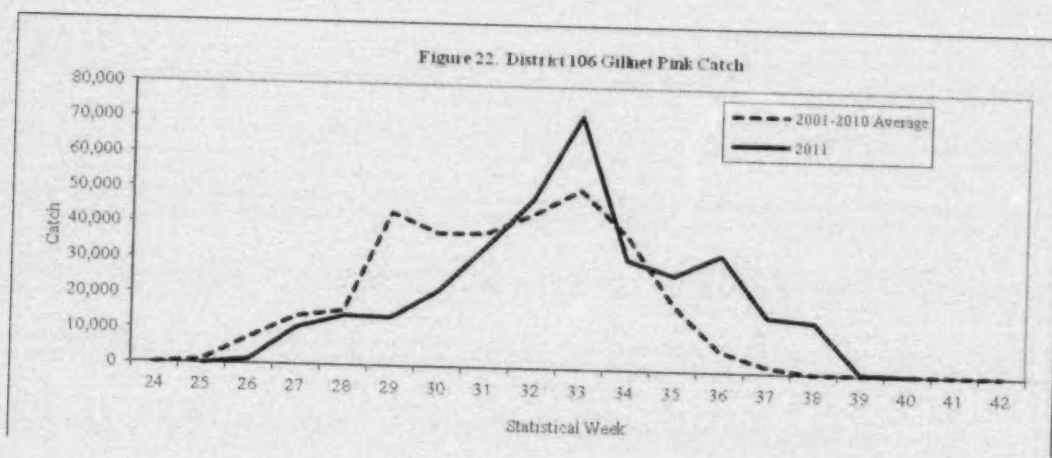
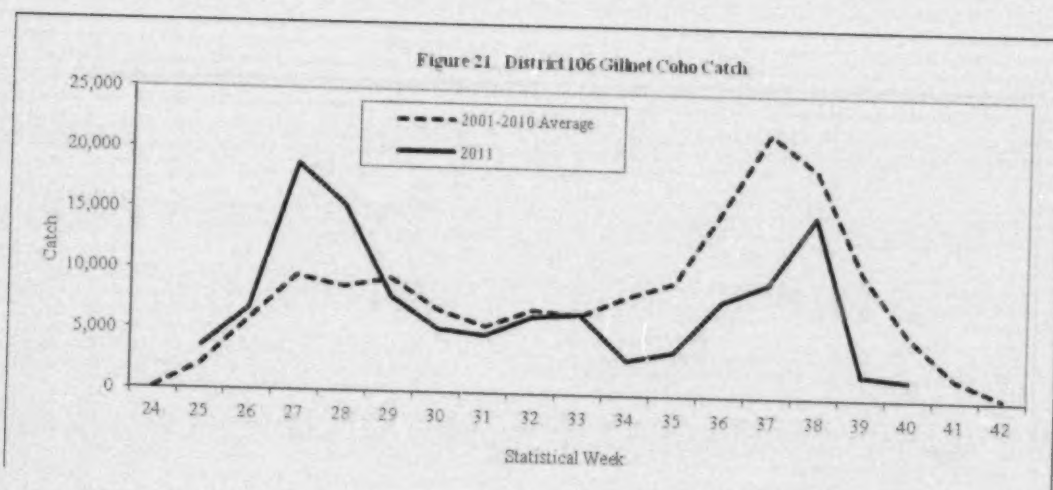
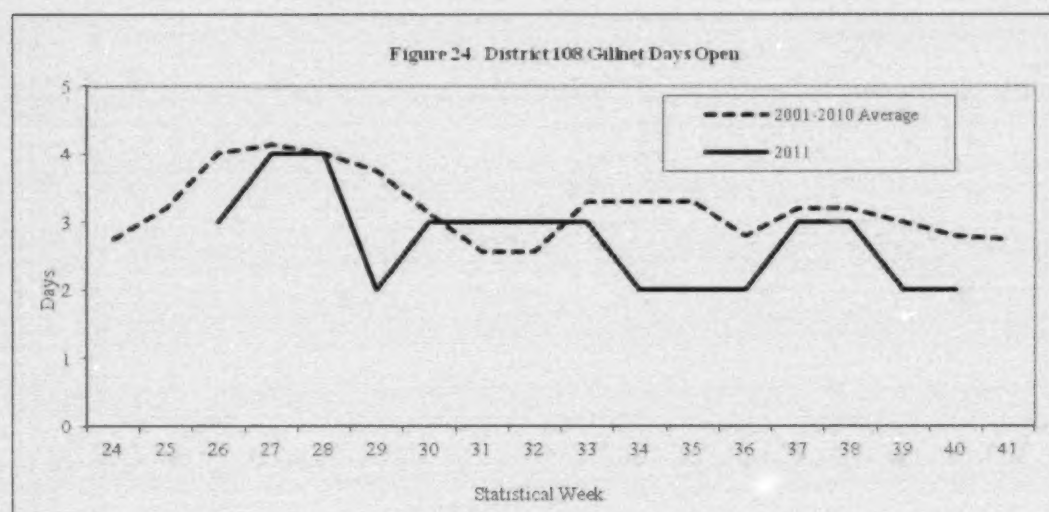


Table 51 Weekly Salmon Catch and Effort in the Alaskan District 108 Commercial Drift Gillnet Fishery, 2011. The permit days are adjusted for boats that fished only the midweek opening.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
26	20-Jun	890	5,360	39	26	397	32	3	96
27	26-Jun	2,052	19,983	393	599	1,082	49	4	196
28	3-Jul	326	10,699	521	2,829	5,034	48	4	192
29	10-Jul	284	4,954	714	6,385	8,423	30	2	60
30	17-Jul	332	4,279	791	10,249	19,052	61	3	183
31	24-Jul	99	3,147	1,581	16,044	34,075	72	3	216
32	31-Jul	52	1,550	1,516	11,641	52,184	65	3	195
33	7-Aug	23	930	2,406	6,762	18,243	57	3	171
34	14-Aug	5	249	1,224	3,808	1,975	45	2	90
35	21-Aug	9	146	1,397	3,854	668	33	2	66
36	28-Aug	1	118	2,673	1,645	391	29	2	58
37	4-Sep	11	54	3,563	971	549	48	3	144
38	11-Sep	12	6	1,927	166	282	21	3	63
39	18-Sep	2	3	1,574	43	154	27	2	54
40	25-Sep	1	0	398	0	17	11	2	22
Total		4,099	51,478	20,717	65,022	142,526	150	41	1,806
2001-2010 Average ^a		4,441	45,682	26,656	38,035	108,966	126	51	2,248
2011 as % of Average		92%	113%	78%	171%	131%	119%	80%	80%

^a Chinook averages are for the directed sockeye fishery period only.



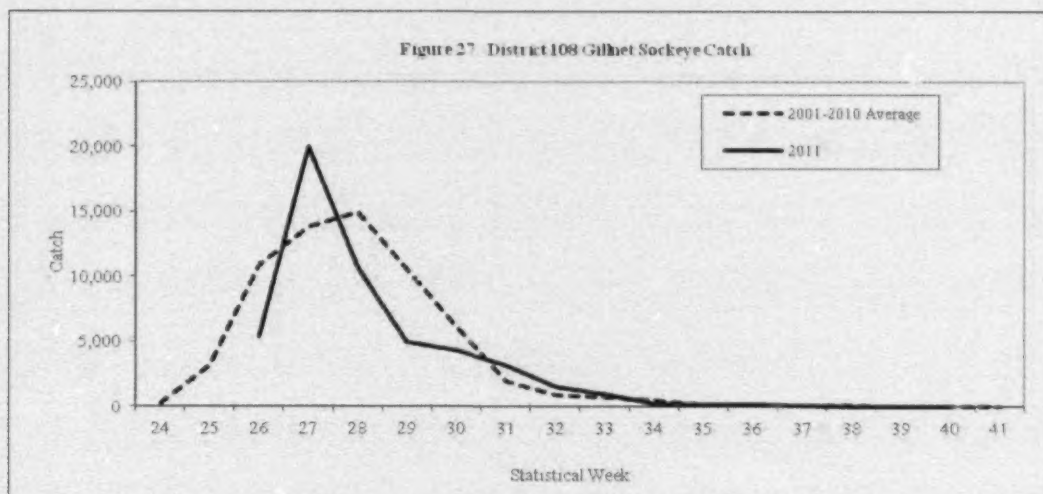
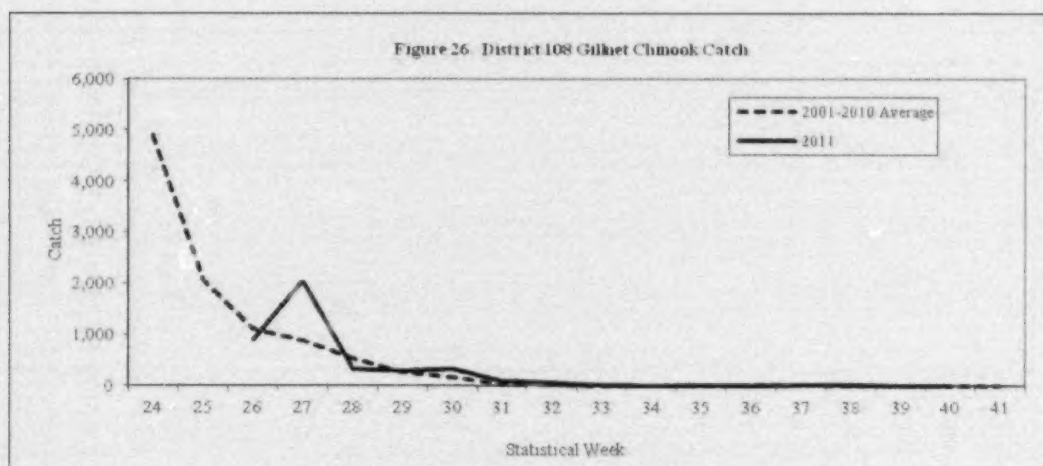
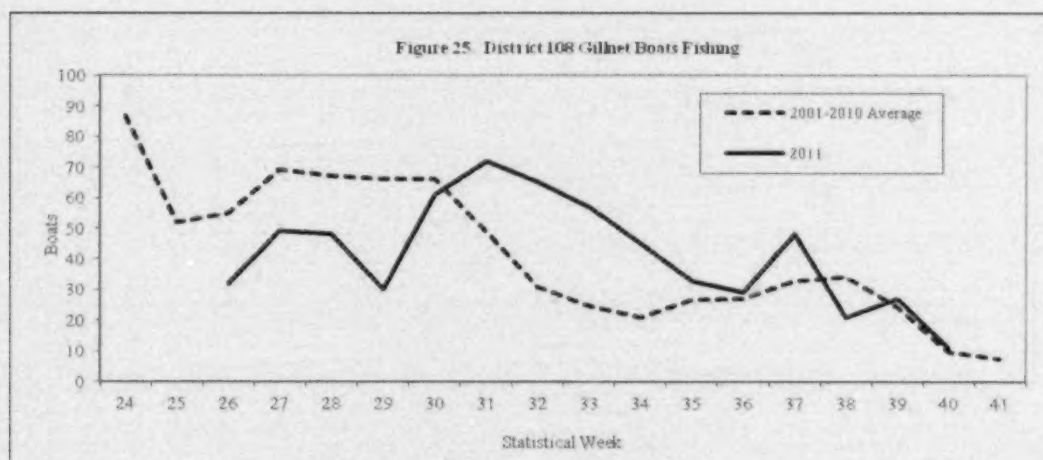


Figure 28: District 108 Gilnet Coho Catch

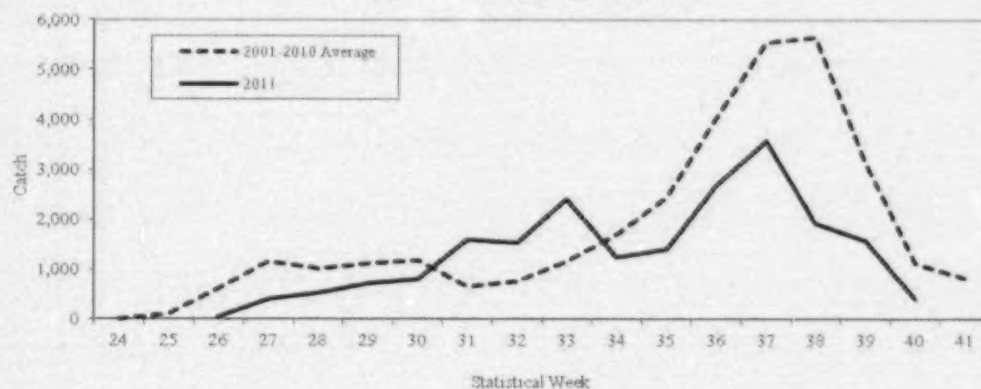


Figure 29: District 108 Gilnet Pink Catch

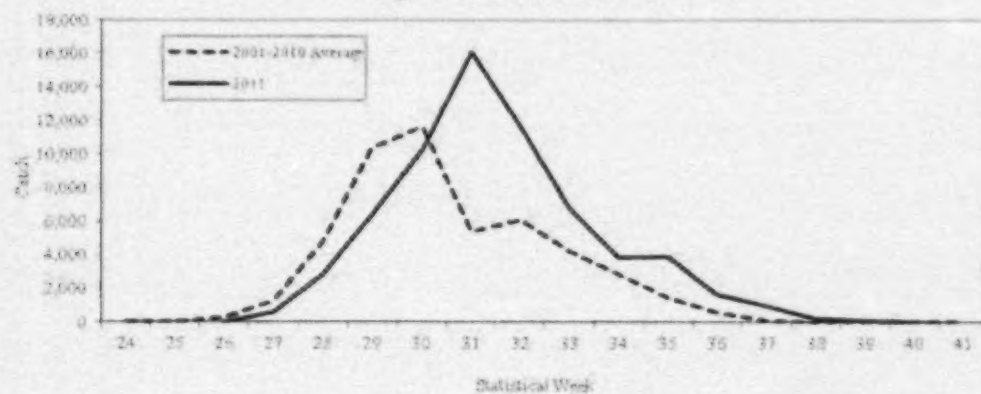
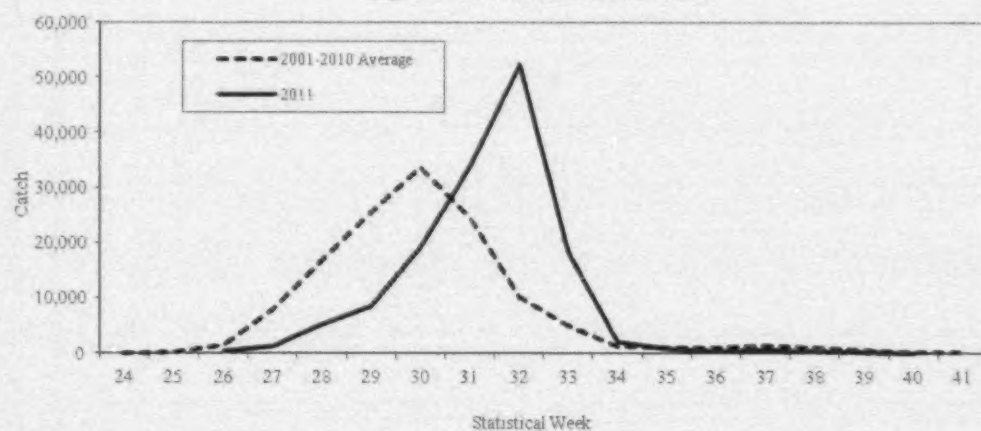


Figure 30: District 108 Gilnet Chin Catch



Harvest sharing of Stikine River enhanced and wild sockeye stocks is based on inseason abundance forecasts produced by the Stikine Management Model (SMM) (Table 52). The marine and inriver catch of planted Tuya fish were estimated by examining otoliths for thermal marks. Egg diameter analysis of inriver catches was used to estimate the relative abundance of Tahltan and Tuya fish to the abundance of mainstem spawning stocks in the Stikine River. The historical average weekly stock compositions were used to estimate the harvests of Tahltan and Mainstem Stikine sockeye salmon stocks in marine harvests.

Based on these analyses and ratios, the 2011 Sumner Strait fishery (subdistricts 106-41 & 42) harvested 29,703 Stikine sockeye salmon, 32% of the total sockeye harvest in those subdistricts. The Clarence Strait fishery (subdistrict 106-30) harvested an estimated 3,200 Stikine sockeye salmon, 6% of the sockeye harvest in that subdistrict. The District 108 fishery harvested an estimated 36,400 Stikine River sockeye salmon, 71% of the District 108 sockeye salmon harvest.

An estimated 69,300 Stikine sockeye salmon were harvested in commercial gillnet fisheries from districts 106 and 108. Of this amount, an estimated 34,600 fish were produced by the joint U.S./Canada fry-planting projects on the Stikine River.

A total of 106 Stikine River subsistence fishing permits were issued and current estimate of the sockeye subsistence harvest for the Stikine River is 1,741 fish. The guideline harvest level for the subsistence fishery is 600 sockeye salmon. Sockeye harvested in the subsistence fishery are part of the U.S. total allowable catch.

Preliminary postseason run reconstruction estimates (Table 53) will differ from the inseason management model estimates (Table 52).

Table 52 Weekly Forecasts of Run Size and Total Allowable Catch for Stikine River Sockeye Salmon as Determined In-Season by the Stikine Management Model, 2011

Stat. Week	Start Date	Forecast Run Size	TAC			Cumulative Catches	
			Total	U.S.	Canada	U.S.	Canada
26	20-Jun	182,977	115,013	57,507	57,507	10,559	3,463
27	27-Jun	174,543	111,306	55,653	55,653	32,705	6,206
28	04-Jul	166,157	103,420	51,710	51,710	51,397	22,963
29	11-Jul	173,934	112,636	56,318	56,318	57,864	30,897
30	18-Jul	166,015	102,948	51,474	51,474	61,463	33,655
31	25-Jul	168,391	105,126	52,563	52,563	64,268	41,107
32	01-Aug	161,220	97,790	48,895	48,895	58,680	45,285
33	08-Aug	160,593	97,088	48,544	48,544	59,684	46,927
34	15-Aug	161,602	98,482	49,241	49,241		
Preliminary end-of-season estimate		214,776	147,196	73,598	73,598	70,947	58,501

^a Does not include test fishery catches

Table 53 Preliminary Post Season Stikine River Sockeye Salmon Run Reconstruction, 2011

	Tahltan	Mainstem	Total	Tuya	Tahltan		Total	All	All
					Wild	Hatchery	Stikine	Planted	Wild
Escapement ^a	34,588	33,699	68,247	14,197	25,235	9,353	82,443	23,550	58,894
ESSR Catch ^b	0		0	0			0	0	0
Biological Samples	340		340	280	248	92	620	372	248
Broodstock	4,559		4,559		3,326	1,233	4,559	1,233	3,326
Natural Spawning	29,689	33,699	63,348		21,661	8,028	63,348	8,028	55,320
Excess ^c				13,917			13,917	13,917	
Canadian Harvest									
Aboriginal	4,150	788	4,938	1,955	2,712	1,438	6,893	3,393	3,500
Upper Commercial	589	95	684	288	366	223	972	511	461
Lower Commercial	23,994	14,043	38,037	9,721	15,044	8,950	47,738	18,671	29,087
Tuya Test	711	151	862	2,016	547	164	2,878	2,180	698
Total	29,444	15,077	44,521	13,980	18,669	10,775	58,501	24,755	33,746
% Harvest	43.7%	49.8%	45.6%	44.0%			57.63		
Test Fishery Catch	772	1,605	2,377	908 ^e	369	403	2,885	911	1,974
Survivor Run	64,803	50,341	115,144	28,685	44,273	20,530	143,829	49,216	94,614
U.S. Harvest ^a									
106-41 & 42	17,917	3,043	20,960	8,742	10,616	7,301	29,702	16,043	13,659
106-30	1,458	1,469	2,927	296	1,308	150	3,223	446	2,777
108	17,857	10,080	27,937	8,432	8,087	9,770	36,369	18,202	18,167
Subsistence	745	579	1,323	330	467	278	1,653	607	1,046
Total	37,977	15,171	53,147	17,800	20,479	17,498	70,947	35,297	35,650
% Harvest	56.3%	50.2%	54.4%	56.0%					
Test Fishery Catch	0	0	0	0	0	0	0	0	0
Total Run	102,780	65,511	168,291	46,485	64,752	38,028	214,776	84,513	130,263
Escapement Goal	24,000	30,000	54,000	0					
Terminal Excess ^d				11,204					
Total TAC ^e	78,008	33,906	111,915	35,281			147,196		
Total Harvest ^f	68,192	31,853	100,045	32,288			132,333	60,963	71,370
Canada TAC	39,004	16,953	55,957	17,641			73,598		
Actual Catch ^g	29,444	15,077	44,521	13,980			58,501	24,755	33,746
% of total TAC	75.5%	88.9%	79.6%				79.5%		
U.S. TAC	39,004	16,953	55,957	17,641			73,598		
Actual Catch ^g	37,977	15,171	53,147	17,800			70,947	35,297	35,650
% of total TAC	97.4%	89.5%	95.0%				96.4%		

a Escapement into terminal and spawning areas from traditional fisheries.

b Catch allowed in terminal areas under the Excess Salmon to Spawning Requirement license.

c Fish returning to the Tuya system are not able to access the lake where they originated due to velocity barriers.

d The number of Tuya fish that should be passed through traditional fisheries in order to harvest the Tuya stock at the same rate as the Tahltan stock to ensure adequate spawning escapement for Tahltan fish.

e Includes traditional, ESSR, and test fishery catches.

f Does not include ESSR or test fishery catches.

g U.S. harvest estimate differs from Joint Interception Committee estimate because no estimates are made for catches other than in the listed fisheries.

A number of stocks are known to contribute to the Wrangell/Petersburg area sport Chinook salmon fishery, including those from the Taku, Unuk, Chickamin, and King Salmon rivers as well as local hatchery stocks. But the major contributor of large, wild mature fish is believed to be the Stikine River. Preliminary estimates indicate that approximately 994 Chinook harvested in the Wrangell/Petersburg sport fishery were of Stikine River origin during 2011 (based on coded wire tag analysis and maturity data collected from onsite surveys).

Taku River Area Fisheries

The escapement goal range for large Taku River Chinook salmon is 19,000 to 36,000 fish with a point goal of 25,500 fish. The PST established base level catches of 1,500 and 3,500 large Chinook salmon for Canada and the U.S., respectively, that reflect the average harvests by each country between 1985 and 2003. In years of high abundance, directed fisheries can be implemented to harvest runs in excess of escapement needs.

In 2011, the preseason forecast of terminal run size was 41,000 which equated to a small U.S. Allowable Catch (AC) of 1,500 large Chinook salmon. Considering the small AC, forecast confidence intervals, and recent forecast performance, directed Chinook commercial troll and gillnet fisheries in District 111 were not opened by regulation on the first Monday in May. Subsequent inseason Chinook forecasts were below escapement goals resulting in no directed Chinook fishery in District 111 and a reduction of fishing time in the initial June 19 directed sockeye fishery opening to two days.

The U.S. sport fishery harvested an estimated 1,065 large wild-stock Chinook salmon. When combined with the 763 large wild-stock Chinook salmon caught in the traditional U.S. sockeye fishery, the U.S. harvested a total of 1,828 large wild-stock Chinook salmon in 2011, well below the base level catch of 3,500 fish.

The first inseason estimate of large Taku River Chinook salmon terminal run was 22,150 and was released on May 19. This drop from the preseason forecast provided no U.S. allowable catch. By late June the inriver Chinook run size past all fisheries was estimated at 10,400, well below the lower bound of the escapement goal range. Poor sampling conditions on the Taku River plagued the project for most of the Chinook run, and it is thought this estimate was biased low.

The following numbers in this paragraph are not bilaterally agreed on and are subject to change. The preliminary 2011 total Canadian harvest of Taku River large Chinook salmon is 3,282. This includes the commercial catch of 2,333, test fishery catch of 699, aboriginal of 150, and recreational of 100. The preliminary Canadian cross-border run estimate is 22,954 and their preliminary escapement estimate is 19,672.

The total run of wild Taku river sockeye salmon in 2011 was expected to be average based on spawner-recruit analysis, sibling forecast and ocean survivals. The 2006 main parent year escapement of 146,150 fish was above the escapement goal of 75,000 fish, as well as the 10-year average escapement of approximately 105,000 sockeye salmon. The 2007 parent year had an escapement of 81,800 fish. Adult returns to date from the joint U.S./Canada Taku River sockeye salmon enhancement projects at Tatsamenie and Trapper Lakes have been low and numbers of enhanced sockeye salmon returning to these systems were not expected to contribute significantly to the harvest in 2011.

The DIPAC forecast for enhanced sockeye salmon returning to the Snettisham Hatchery was 203,000 fish, well-above last year's return of 67,600 fish.

Directed sockeye and chum salmon fishing in District 111 opened in week 26 on Sunday, June 19 with area restrictions and fishing time reduced to two days due to concerns over low Chinook salmon returns to the Taku River. The Taku Chinook inseason estimate continued to project a terminal run size below the escapement goal range. Using standard run timing, 95% of the returning Taku River Chinook are past the U.S. fishery at this time. A below average number of boats caught average numbers of Chinook salmon and below average numbers of sockeye salmon. Canyon Island fishwheel sockeye catches were at the 10-year average as was the Canadian inriver sockeye fishery CPUE.

The District 111 fishery opened in week 27 for three days on Sunday, June 26. Restrictions in time and area open to fishing continued due to concerns regarding Chinook returns. Boat numbers increased but were still below average. Surveys on the grounds indicated a sockeye CPUE of about average with CPUE's of Chinook, pink and coho salmon above average. Taku River fishwheel and Canadian inriver fishery sockeye CPUE were below average.

Week 28 was the final week for Transboundary Chinook accounting in District 111. The area open remained restricted and the opening was limited to three days beginning July 3 as a Chinook conservation measure. Pink and coho catches were above average while sockeye and chum catches were below average.

The District 111 fishery opened in week 29 for three days on Sunday, July 10. The number of boats fishing increased significantly and a near record number of chum and a record number of pink salmon were caught. The sockeye catch was slightly below the ten year average.

The fishery opened in week 30 for three days on July 17. The number of boats fishing declined slightly and while pink and chum catches fell they remained above average. Coho catches increased and remained above average. Sockeye catches in the District 111 fell to below average. Catches in the Canyon Island fishwheels improved and the sockeye CPUE in the Canadian inriver fishery was above average. The inriver estimate of sockeye run strength was good and indicated no escapement concerns for the Taku River.

The fishery was open for four days in week 31 beginning July 24 based on good inriver data indicating that the minimum sockeye escapement goal had been reached. The number of boats fishing declined. Sockeye catches increased but remained below average. Above average catches of coho and pink salmon increased significantly. Chum catches declined slightly but remained above average. Preliminary otolith analyses indicated that enhanced Snettisham sockeye were a significant portion of the catch.

In week 32 District 111 opened initially on July 31 for three days, with a one day extension as sockeye catches increased but remained slightly below average. The number of boats continued to decline. The CPUE for all species was above average. Catches of pink and chum declined but remained above average. Catches of coho salmon declined to slightly below average or the first time in the season.

District 111 opened in week 33 for four days on Sunday, August 7. Initially the number of boats fishing increased to slightly above average but declined as the opening progressed. Sockeye CPUE declined and the catch was slightly below average. Pink salmon catches were similar to the prior week and remained above average. Coho catch increased to above average. Chum catches fell but remained slightly above average. Catch rates in the Stephens Passage portion of the district were higher than in Taku Inlet for all species except coho which were about the same.

In week 34 the fishery was opened for three on Monday August 15. The number of boats fishing declined to below average. The number of sockeye counted through the Speel Lake weir reached the minimum escapement goal. For the district as a whole the catch of all salmon species declined. Many boats moved to Port Snettisham for a one day opening targeting enhanced sockeye salmon returning to the Snettisham Hatchery on Wednesday where catches were better than anticipated with above average catches of both sockeye and pink salmon. Approximately 97% of the week's sockeye salmon harvest was caught in Port Snettisham.

In week 35 the District 111 fishery, including the Port Snettisham portion, was open for three days beginning August 21. Fishing effort at the beginning of the opening increased but flooding and debris in the water resulted in poor catches and the number of boats fishing declined as the opening progressed.

Sockeye catches increased slightly to about average. Coho catches increased but remained below average. Pink salmon catches increased and remained above average. About average numbers of a few hundred chum salmon were caught weekly throughout the remainder of the season.

In week 36 the fishery opened for 3 days on Sunday, August 28. Effort was above average but declined as the opening progressed. Catches of pink salmon were low but above average, catches of sockeye salmon were about average, catches of coho salmon increased but remained below average.

In week 37 District 111 opened for three days on September 4. Below average fishing effort declined as the opening progressed due to poor fishing and bad weather. Daily coho catches in the Canyon Island continued to be below average. The Pacific Salmon Treaty mandates that 38,000 coho salmon be passed above the border and it was estimated that 87% of this obligation had been met, with 54% of the return past Canyon Island.

In week 38 the fishery was opened for two days on September 11. Catches of coho and chum improved somewhat, as did coho catch in the Canyon Island fishwheels, but were still below average. The PST mandate to pass 38,000 coho above the border was estimated to have been met.

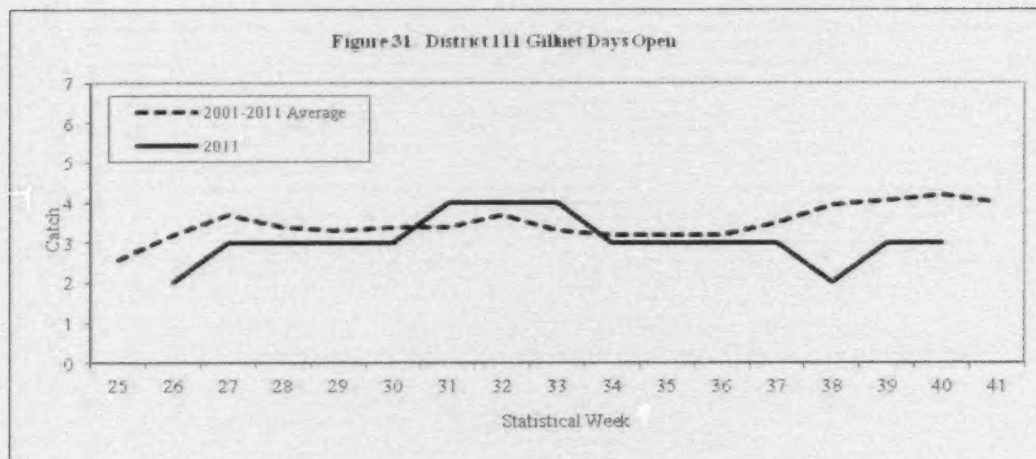
For the last two weeks of the season the fishery was opened three days a week, effort declined, and coho catches fell to a few hundred fish. The fishery was closed for the season on September 28 in week 40.

Table 54 Weekly Salmon Harvest in the Alaskan District 111 Traditional Commercial Drift Gillnet Fishery, 2011.

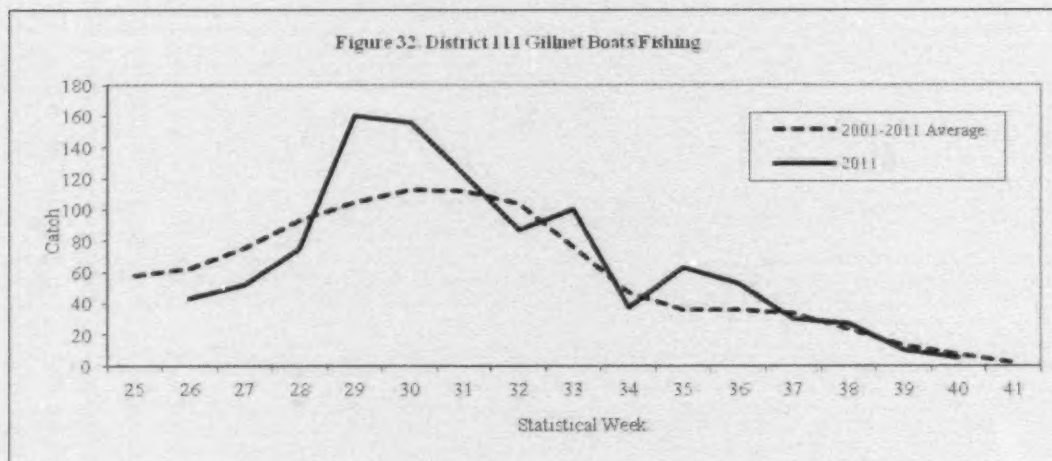
Stat. Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	19-Jun	349	2,143	25	267	1,370	43	2	86
27	26-Jun	330	4,531	106	6,888	24,622	52	3	156
28	3-Jul	168	8,487	928	22,668	76,690	75	3	225
29	10-Jul	287	18,938	1,225	62,040	297,785	160	3	480
30	17-Jul	79	9,833	1,877	52,445	121,490	156	3	468
31	24-Jul	79	18,132	4,827	83,811	104,221	123	4	492
32	31-Jul	21	20,306	2,397	38,152	29,912	87	4	348
33	7-Aug	23	13,434	3,699	39,269	9,610	100	4	400
34	14-Aug	2	1,633	904	11,229	468	37	3	111
35	21-Aug	37	2,143	3,073	19,593	581	63	3	189
36	28-Aug	1	808	3,930	2,277	468	53	3	159
37	4-Sep	1	54	1,155	17	139	30	3	90
38	11-Sep	0	34	2,390	1	306	27	2	54
39	18-Sep	0	4	765	0	43	10	3	30
40	25-Sep	0	0	262	0	4	5	3	15
Total		1,377	100,480	27,563	338,657	667,709	208	46	3,302
2001-2010 Average ^a		1,580	148,958	37,006	120,896	401,595	184	61	3,586
2011 as % of average		87%	67%	74%	280%	166%	113%	75%	92%

^a Chinook averages are for the directed sockeye fishery period only.

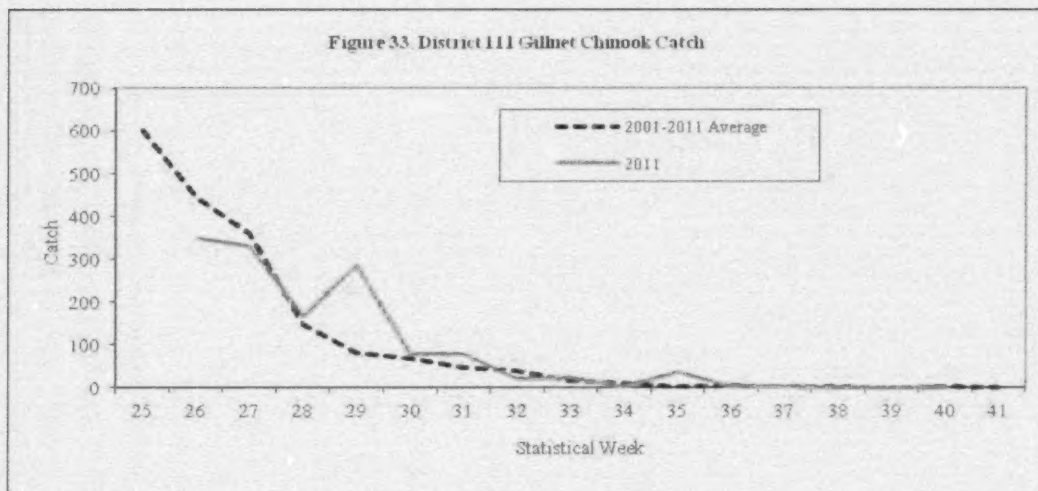
Except for weeks 31-33, District 111 was open a below average number of days.



The number of boats fishing was below average during the first three weeks of the season, above average in early July, and about average for the remainder of the season.



There was no directed District 111 Chinook salmon fishery in 2011. In the directed sockeye portion of the fishery the catches of large Chinook, including hatchery fish, was about average, totaling 1,337 fish (Figure 33).



The total 2011 wild Taku River sockeye salmon run was estimated at 192,000 fish (Table 55). Based on the escapement goal midpoint of 75,000 wild Taku River sockeye, the TAC was 116,900 fish. The U.S. TAC was 90,015 wild Taku River sockeye (72% of the TAC). Sockeye salmon produced from a joint U.S./Canada fry-planting program at Trapper and Tatsamenie Lakes contributed an estimated 5,500 fish or 0.08% of the total US sockeye catch. An estimated 27,200 Snettisham Hatchery sockeye salmon were harvested in common property traditional fisheries in District 111.

The preliminary 2011 estimated above-border in-river wild Taku River sockeye run, based on mark-recapture estimates at Canyon Island, was 132,523 wild-stock sockeye plus 4,338 salmon from Tatsamenie and Trapper fry plants, for a total of 136,861 sockeye salmon. After accounting for harvests, a total of 112,178 sockeye salmon escaped past all fisheries, above the 71,000 - 80,000 fish escapement goal range.

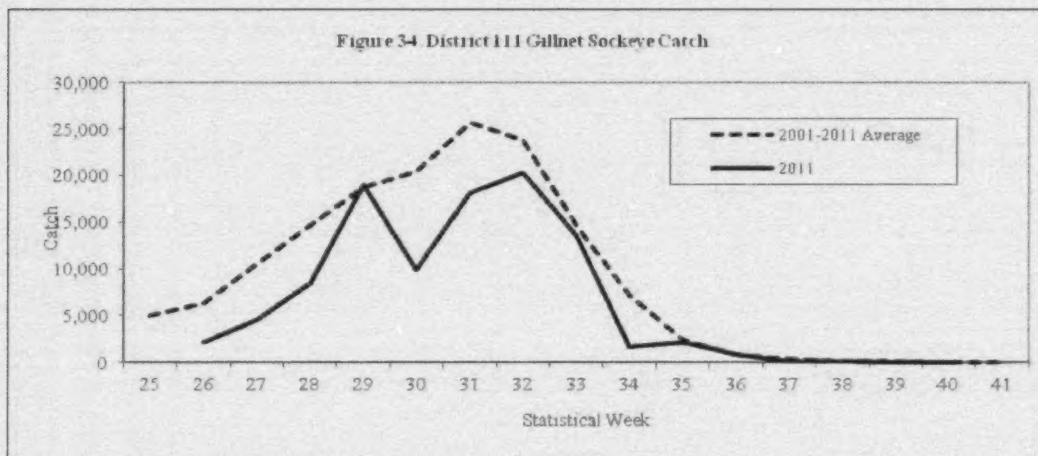
Preliminary 2011 Taku River sockeye escapements for enumerated systems were approximately: Trapper Lake weir count of 3,800; Kuthai Lake 810; Tatsamenie Lake weir count of 7,900 (spawning escapement 6,600), and King Salmon Lake 500 fish. Escapements of sockeye salmon to Port Snettisham systems were poor, with 4,800 counted through a weir at Speel Lake, within 4,000-13,000 fish escapement goal range. The Crescent Lake sonar reported a net upstream count of approximately -1,500 fish, which was not separable by species. It is known that all species of Pacific salmon do enter Crescent Lake; however sockeye is the predominant species.

Table 55 Preliminary Taku Sockeye Salmon Run Reconstruction, 2011. Estimates do not include spawning escapements below the U.S./Canada border.

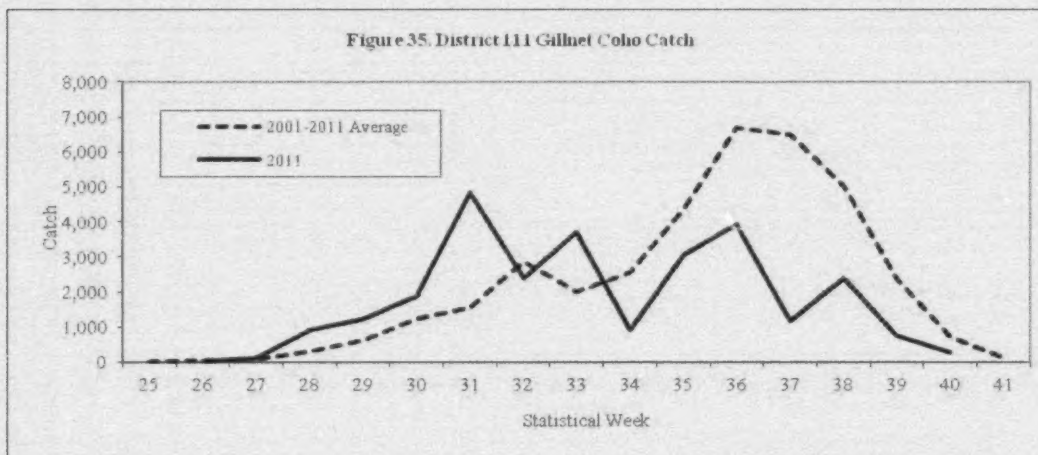
	Total	Taku Wild	Planted
Escapement	112,187	109,769	2,418
Canadian Harvest			
	24,012	22,143	1,869
Food Fishery	124	114	10
Total	24,136	22,258	1,878
Test Fishery Catch	538	496	42
Above Border Run	136,861	132,523	4,338
U.S. Harvest ^a			
District	65,587	60,241	5,346
Personal Use	1,053	967	82
Total	66,640	61,208	5,428
Test Fishery Catch	0		
Total Run	203,501	193,730	9,766
Taku Wild Harvest Plan			
Total Wild Run		193,730	
Escapement Goal		75,000	
Wild		118,730	
Canada			
Wild Harvest Share		21%	
Base Allowable		24,933	
Surplus Allowable		12,523	
Wild AC		37,456	
Actual		22,258	
U.S.			
Wild Harvest Share		79%	
Wild AC		93,797	
Actual		61,208	
U.S. overage/underage		-32,589	
Canada overage/underage		-15,199	

^a U.S. harvest estimate differs from Joint Interception estimate because no estimates are made for catcher other than the listed fisheries

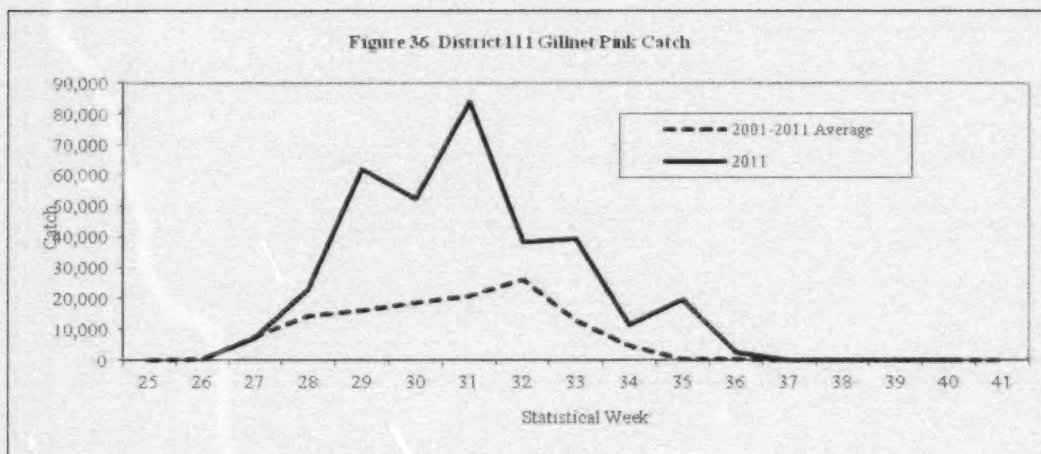
The 2011 sockeye catch in the District 111 drift gillnet fishery was 100,480 which is 67% of the 2001-2010 average. With the exception of week 29, sockeye catches were below average throughout the season (Figure 34).



Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries. The 2011 coho harvest of 27,563 fish was 74% of the 10-year (2001-2010) average (Figure 35). Approximately 63% of the coho were harvested in Taku Inlet, below the ten-year average of 81%; and 37% were harvested from Stephens Passage weekly coho harvests were above average in early July but fell to below average from mid-August through the end of the season.

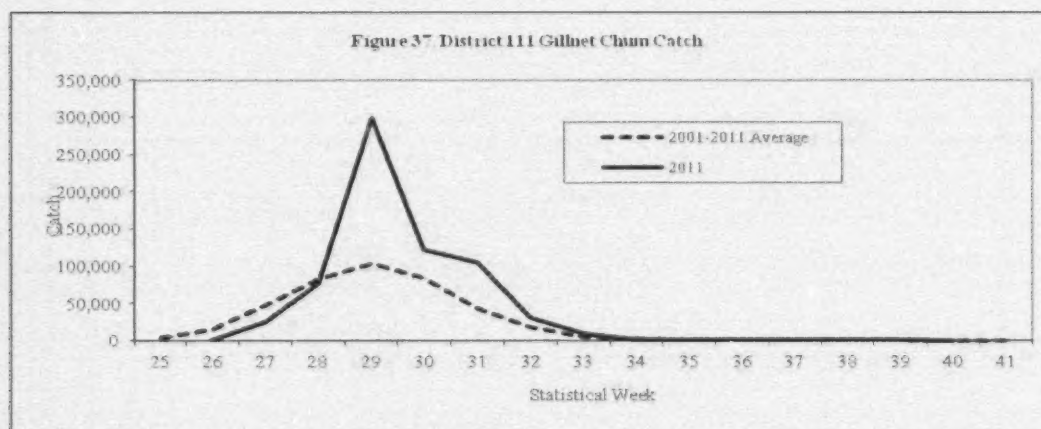


The 2011 District 111 pink salmon harvest of 338,657 fish was 280% of the ten-year (2001-2010) average (Figure 36). The 2011 pink salmon escapement to the Taku River was unknown; however, the number of pink salmon passing through the fish wheels at Canyon Island is used as an index of escapement. The 2009 (parent year) Canyon Island pink salmon fish wheel catch was 9,225 fish. The 2011 Canyon Island pink salmon fish wheel catch of 17,774 was 51% above the 1991-2009 even-year average of 11,745.



The catch of 667,709 chum salmon was 166% of the ten-year (2001-2010) average, and was comprised almost entirely of summer run fish (Figure 37). The summer chum run is considered to last through mid-August (week 33) and is comprised mostly of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning both to DIPAC hatcheries in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 83% of the District 111 chum harvest was taken in Taku Inlet, and 17% in Stephens Passage.

The harvest of 2,009 fall chum salmon (i.e. chum salmon caught after week 33) was 49% of the ten-year (2001-2010) average. Most of these chums are probably of wild Taku and Whiting River origin. Chum salmon escapement numbers to the Taku River are unknown; however, the numbers of fall chum passing through the fish wheels at Canyon Island were used as an index of escapement. The index number for 2011, 160 chum salmon, is 53.7% of the 2001-2010 average.



Several other fisheries in the Juneau area harvested Taku River salmon stocks in 2011. Personal use permits were used to harvest an estimated 1,078 Taku River sockeye salmon. A number of stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of large, wild mature fish was believed to be the Taku River. Preliminary estimates indicate that approximately 1,065 of the Chinook harvested in the Juneau sport fishery were of Taku River origin (based on coded wire tag analysis and maturity data from onsite survey data).

Transboundary River Joint Enhancement Activities

The transport of sockeye fry from the Snettisham Hatchery facility back to the Canadian lakes took place between May 25 and June 12, 2011. Spring, ice-out conditions and fry transport timing for the lakes was on-par with the past several years. Slightly over 4.0 million fry were released in the Canadian Tahltan, Tuya, and Tatsamenie Lakes. Fry transported were released directly from the aircraft into the lakes with one exception. An extended rearing project in shore-based raceways at Tatsamenie Lake was funded by the Pacific Salmon Commission Northern Fund. For that project there were 198,000 fry which were reared until late July and early August before release.

The Tatsamenie Lake extended rearing project involved using water from an upland fish-free water source. This rearing group was incubated and reared on heated water for 127 days; these fish had accelerated development which facilitated early ponding as well as increased growth during the start-up rearing period. Growth and survival was good.

There were 10 Tahltan Lake stock incubators of brood year 2010 fry lost to the IHN virus this season; five lots designated for Tuya Lake and five lots designated for Tahltan Lake resulting in a loss of 2.18 million fry. This is the third year in a row with IHNV losses and, while mildly disturbing, the losses due to this virus are consistent with Alaska's experience with sockeye culture.

Table 56 Summary of numbers and survival rates of brood year 2010 sockeye salmon fry released May-June 2011. Fish were raised at Snettisham Hatchery as part of the Transboundary River Salmon Enhancement Project.

Broodstock	Release Site	Number of Trips	Survival Rate		Number Released
			to Eyed Stage	Survival Rate to Release	
Tahltan	Tahltan	3	81.9%	43.6%	1,244,000
Tahltan	Tuya	3	82.4%	39.9%	1,234,000
Tatsamenie	Tatsamenie: direct	3	91.8%	83.3%	1,398,000
Tatsamenie	Tatsamenie: extended rearing	2	93.2%	90.6%	198,000
Totals		11			4,074,000

Brood Year 2011 Activities

Brood year 2011 TBR egg takes were initiated on August 29th at Tahltan Lake, and September 15th at Tatsamenie Lake. An estimated total of 8.1 million green eggs were collected from the two donor lakes.

Tahltan Lake egg takes were completed on September 20th with an estimated 6.07 million eggs. The receipt of five lots of Tahltan eggs was delayed by 1 day, due to a desire for fewer flights and larger egg takes; there were 13 lots in aggregate. Tatsamenie Lake egg takes were completed on September 26th with an estimated 2.05 million eggs. Two lots of Tatsamenie eggs were delayed by 1 day, due to poor weather conditions. There were 4 lots in aggregate at Tatsamenie Lake.

During the 2011 season, the ADFG thermal mark lab processed 20,977 sockeye otoliths collected by ADFG and DFO staff as part of the U.S./Canada fry-planting evaluation program. These collections came from commercial and test fisheries in both U.S. and Canadian waters on the Taku and Stikine Rivers over an 11-week period. In addition, several escapement samples were examined. The laboratory provided estimates on hatchery contributions for 90 distinct sampling collections. Estimates of the percentage of hatchery fish contributed to commercial fishery catches were provided to ADF&G and DFO fishery managers 24 to 48 hours after samples arrived at the lab.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty does call for a cooperative attempt to rebuild depressed Chinook and early-run sockeye stocks. The Canadian DFO preseason forecasts for salmon in the Alsek River were for below average returns for both Chinook and sockeye salmon based on parent-year spawning escapements, commercial catch trends, and observations of rearing conditions. Although the Chinook salmon Biological Escapement Goal (BEG) was attained at the Klukshu weir in 2009, recent returns have been below average.

The 2011 Alsek River sockeye salmon harvest of 24,169 fish in the U.S. commercial fishery was well above the recent 10-year average. The Canadian inriver harvest was 1,378 sockeye salmon for Klukshu River and 1,458 total aboriginal harvests with 352 sockeye reported for Village Creek. The Klukshu River weir count of 21,389 sockeye salmon was well above average and the goal range of 7,500 to 15,000 fish. The count of 5,635 early run sockeye salmon (count through August 15) and the late run count of 15,754 were both above average.

The Chinook salmon run to the Alsek River appeared to be average or above average. The U.S. Dry Bay catch of 546 large Chinook salmon was right on the recent 10-year average. The Canadian recreational fishery catch of 95 fish and aboriginal catch of 71 were both above average. The 1,670 Chinook salmon counted through the Klukshu River weir was above the recent ten-year average of 1,504 fish and well above the lower bound of the escapement goal range.

Current stock assessment programs prevent an accurate comparison of the Alsek River coho salmon run with historical runs. The U.S. Dry Bay catch of 1,614 coho salmon was slightly below average as was the Canadian inriver aboriginal fishery catch of 9 fish. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it is removed before the run is over; however, it does provide an annual index. The count of 2,119 coho salmon was slightly below average.

Table 57 Weekly fishing effort and salmon harvest for Alsek River, 2011.

Week	Boats	Days	Chinook	Sockeye	Coho	Pink	Chum
24	11	2	209	991	0	0	0
25	12	1	164	585	0	0	0
26	12	1	133	495	0	0	0
27	13	2	28	2,156	0	0	0
28	12	3	7	6,423	0	0	0
29	15	3	5	7,118	0	0	0
30	8	3	0	4,572	0	0	0
31	5	2	0	1,364	0	0	0
*32-34	4	5	0	444	27	0	0
35	Not Fished						
36	4	3	0	9	468	0	1
37	4	3	0	9	466	0	4
*38-39	6	6	0	0	160	0	6
40-42	Not Fished						
Total	18	46	546	24,169	1,614	0	11

*Weeks with fewer than three permits, confidential information so data combined in catch table.

Table 58 Annual effort and salmon harvest for Alsek River, 2001-2011.

Year	Boats	Days	Chinook	Sockeye	Coho	Pink	Chum
2001	12	33	541	13,995	2,909	8	17
2002	11	46	700	16,918	9,525	0	1
2003	12	39	937	39,698	47	0	0
2004	16	48	656	18,030	2,475	0	2
2005	15	28	239	7,572	1,196	0	0
2006	19	45	530	9,842	701	2	3
2007	21	48	400	19,797	134	0	0
2008	20	33	593	2,870	2,668	0	2
2009	14	38	602	12,906	3,454	0	20
2010	19	36	273	12,668	1,884	0	9
2011	18	46	546	24,169	1,614	0	11
10-Year Average	16	39	547	15,430	2,499	1	5

Table 59 Alsek river sockeye salmon catch-per-unit of effort and management actions for fishery, 2011.

Week	Ave CPUE	Monday	Final	Action
24	46.99	38.33	46.50	One day extension
25	71.84	45.33	48.75	No extension
26	80.18	43.38	41.18	No extension
27	103.04	117.00	80.31	One day extension
28	97.52	190.31	178.42	Two day extension
29	104.51	213.71	170.87	Two day extension
30	87.54	180.00	190.50	Two day extension
31	89.96	231.67	181.38	One day extension
32	88.59	73.50	149.50	No extension
33	66.80	51.00	46.00	No extension
34	15.01	-		Three days for coho management

In 2011 management strategies were back to traditional regimes by monitoring fishery performance data and comparing it to historical CPUE for a given opening to adjust time and area openings. The Alsek River commercial fishery opened on the first Sunday in June, (June 5), statistical week 24, for 24 hours with a one day extension. 11 permits harvested 209 Chinook and 991 sockeye salmon during the first opener (Table 57). Effort started to decline by week 34 and management strategies switched to coho salmon. Coho salmon are targeted from mid-August on and effort becomes minimal. Fishing times remained at three days per week from week 34 through the second week in October (week 42), and the river was not fished during the last three weeks of the season.

Table 60 Alsek River Chinook Test Fishery, 2011.

Week	Date End	Hours	Chinook	CPUE	Sockeye
21	21-May	108.00	7	0.06	4
22	28-May	132.50	41	0.31	4
23	4-June	121.50	196	1.61	55
24	11-June	77.00	92	1.19	27
25	18-June	101.00	68	0.67	51
26	25-June	74.50	17	0.23	16
Total			421		157

2011 Summary of the Alsek Chinook Test Fishery

The 2011 test fishery opened on May 15 (stat. wk 21) and closed on June 24 (stat. wk 26). A total of 421 Chinook salmon were harvested (harvest quota maximum of 500 fish). Based on fishery CPUE the peak of the Chinook run was in week 23. The gear used throughout the fishery was an 8 1/4 -inch meshes, 20 fathom set gillnet. 421 Chinook were sampled for age, sex, and length (except 17 were not sexed due to fish cleaned prior to sampling) and for CWT (just in case, none found), and for genetics. All ASL scales and data sheets went to Juneau.

The fishing site was located approximately 20 kilometers up from the river mouth and about 10 km below Alsek Lake. This location was just above the upper boundary for the common property fishery and near the location where Chinook and sockeye salmon mark-recapture studies were conducted by ADF&G and DFO.

Table 61 Summary of weekly Chinook salmon harvest and CPUE information for Dry Bay test fishery, 2005-2008, and 2011.

Week	Harvest					CPUE				
	2005	2006	2007	2008	2011	2005	2006	2007	2008	2011
20	-	0	-	-		-	0	-	-	
21	-	0	8	6	7	-	0	0.07	0.1	0.06
22	39	13	68	88	41	1.63	0.11	0.46	0.58	0.31
23	180	37	90	87	196	2.45	0.33	0.87	0.83	1.61
24	125	64	90	147	92	1.09	1	1.15	1.45	1.19
25	52	21	40	111	68	0.56	0.19	0.84	1.82	0.67
26	9	-	31	25	17	0.07	-	0.42	0.25	0.23
27	17	-		-		0.71	-	-		
Total Test Fishery Harvest	422	135	327	464	421	-	-	-		
Klukshu Escapement	1,070	566	676	465	1,670	6.51	1.63	3.81	5.03	4.07

Table 62 Klukshu River Weir escapement, 1976-2011.

Year	Chinook ^a	Sockeye ^b	Coho
1976	1,278	11,691	1,572
1977	3,144	26,791	2,758
1978	2,976	26,867	30
1979	4,405	12,308	175
1980	2,637	11,739	704
1981	2,113	20,323	1,170
1982	2,369	33,699	189
1983	2,537	20,492	303
1984	1,672	12,727	1,402
1985	1,458	18,620	350
1986	2,708	24,880	62
1987	2,616	10,504	202
1988	2,037	9,341	2,774
1989	2,456	23,542	2,219
1990	1,915	25,995	315
1991	2,489	18,977	8,540
1992	1,366	20,215	1,145
1993	3,302	16,740	788
1994	3,735	15,038	1,232
1995	5,678	22,202	3,650
1996	3,602	8,317	3,465
1997	2,757	11,012	307
1998	1,347	13,580	1,961
1999	2,190	5,069	2,371
2000	1,365	5,551	4,832
2001	1,825	10,290	748
2002	2,240	25,711	9,921
2003	1,671	32,120	3,689
2004	2,525	15,348	750
2005	1,070	3,373	683
2006	568	13,455	420
2007	677	8,956	300
2008	436	2,731	4,275
2009	1,568	5,731	424
2010	2,357	18,936	2365
2011	1,670	21,407	2,127
2001-2010 average	1,494	13,665	2,358

^a Chinook salmon escapement goal range is 1,100 to 2,300 fish (CTC accepted revision to 800-1,200 in fall 2009 pending).

^b Sockeye salmon escapement goal range is 7,500 to 15,000 fish (plus 3,000 to tribe).

^c Coho salmon weir counts are not indicative of entire escapement.

Southeast Alaska Chinook Salmon Fishery

All Gear Harvest

The Chinook Technical Committee (CTC) of the PSC determined that the Chinook abundance index for Southeast Alaska for 2011 is 1.69. This abundance index equated to an all gear quota of 294,800 Treaty Chinook salmon, which is about 73,000 fish greater than the 2010 quota.

This was the third year that the Annex IV, Chapter 3 provisions of the 2009 PST agreement were implemented. Therefore, the harvest allocation for SEAK reflects a 15% reduction in allowable catch from that allowed under the 1999 PST Agreement. The preliminary estimated total Chinook salmon harvest, including Alaskan hatchery fish, by all Southeast Alaska commercial fisheries was 297,814 fish, and the preliminary sport fish harvest was 60,538, for an all-gear total harvest of 358,352 (Table 63). The preliminary all-gear Treaty harvest was 290,301 fish, 1.53% below the all-gear treaty quota of 294,800.

Table 63 Preliminary estimated all-gear Chinook salmon harvests in 2011.

2011 Preliminary Estimated All-Gear Chinook Salmon Harvests								
Gear	Total Harvest	AK Hatchery Harvest	Wild Terminal Exclusion	Alaska Hatchery Addon	Treaty Harvest	Quota	O/U	% O/U
Troll	242,121	24,995	189	21,206	220,725	218,060	2,665	1.22%
Purse Seine	26,404	17,901	0	17,264	9,140	12,676	-3,536	-27.90%
Drift Gillnet	28,166	19,786	630	18,101	9,435	8,549	886	10.36%
Set Net	1,123	0	0	0	1,123	1,000	123	12.30%
Total Net	55,693	37,687	630	35,365	19,698	22,225	-2,527	-11%
Total All Commercial Gear	297,814	62,682	819	56,571	240,423	240,285	138	0.1%
Sport	60,538	12,047	0	10,660	49,878	54,515	-4,637	-8.51%
Total All Gear	358,352	74,729	819	67,231	290,301	294,800	-4,499	-1.53%

Note: Annette Island and terminal area harvests are included

Table 64 Chinook all-gear harvest¹ in Southeast Alaska, 1987 to 2011, and deviation from the ceiling for years for which there were ceilings. Harvests are in thousands.

Year	Total Harvest	Add-on and Exclusion Harvest	Target Treaty Harvest	Treaty Harvest	Deviation Number	Deviation Percent
1987	282.4	17.1	263	265.3	2.3	0.90%
1988	279.3	22.5	263	256.8	-7.8	-3.00%
1989	291	21.5	263	269.5	6.5	2.50%
1990	366.9	45.9	302	321	19	6.30%
1991	359.5	61.5	273	298	25	9.20%
1992	258.8	36.8	227.4	222	-5.4	-2.40%
1993	304.1	32.9	263	271.2	8.2	3.10%
1994	264.4	29.2	240	235.2	-4.8	-2.00%
1995	235.7	58.8		176.9		
1996	236.3	81.3		155		
1997	343	56.3		286.7		
1998	270.6	27.4	260	243.2	-16.8	-6.50%
1999	251	52.2	184.2	198.8	14.6	7.90%
2000	263.3	76.8	178.5	186.5	8.0	4.50%
2001	265.7	78.8	250.3	186.9	-63.4	-25.30%
2002	426.5	69.4	371.9	357.1	-14.8	-4.00%
2003	439.4	59.3	439.6	380.2	-59.5	-13.50%
2004	506.2	82.2	418.3	417	-1.3	-0.30%
2005	469.6	105.8	416.4	390.8	3.4	0.90%
2006	438.5	75.8	354.5	362.7	8.1	2.30%
2007	406.9	77.5	259.2	329.4	70.2	27.10%
2008	247.3	74	170	173.3	20.5	13.40%
2009	299.3	68.9	218.8	230.5	11.7	5.30%
2010	287.5	55.9	221.8	231.6	9.8	4.40%
2011	358.4	68.1	294.8	290.3	-4.5	-1.50%

¹ The actual target harvest and deviation cannot be calculated until the CTC completes the postseason calibration.

² The 2007-2010 exclusion harvests are still preliminary pending genetic stock composition estimates of the District 108 and District 111 fisheries.

Troll Fishery

The accounting of treaty Chinook salmon harvested by trollers begins with the winter fishery and ends with the summer fishery. The winter troll fishery is managed to not exceed the guideline harvest level (GHL) of 45,000 Chinook salmon established by the Alaska Board of Fisheries. The 2010-2011 winter troll fishery was open from October 11, 2010 through April 20, 2011 and harvested a total of 50,826 Chinook salmon. Of these 7.4% (3,780) were of Alaska hatchery origin of which 3,174 counted toward the Alaska hatchery add-on, resulting in a Treaty catch of 47,652 (Table 65). The 2010-2011 winter fishery closed 10 days early, on April 20, due primarily to increased catch rates and effort during the last four weeks of the fishery.

The spring troll fisheries target Alaskan hatchery-produced Chinook salmon and are conducted along migration routes or close to hatchery and release sites. Terminal area fisheries, which begin during the spring, occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. In 2011, spring troll

fisheries were conducted from May 1–June 30 in a total of 28 spring areas and four terminal area fisheries. The combined spring and terminal troll harvest was 41,082 Chinook salmon, the Alaska hatchery catch was 16,958 (41%) of which 14,648 counted toward the Alaska hatchery add-on, resulting in a Treaty Harvest of 26,434 (Table 65).

The 2011 summer troll fishery included two Chinook salmon retention periods. From July 1–12, a total of 120,512 Chinook salmon were harvested, of which 3,333 (3%) were of Alaskan hatchery origin with 2,798 counted toward the Alaska hatchery add-on, resulting in a Treaty catch of 117,714 fish.

In the second summer retention period, from August 15–17, a total of 29,698 Chinook salmon were harvested, of which 923 (3.0%) were of Alaskan hatchery origin and 775 counted toward the Alaska hatchery add-on, resulting in a treaty harvest of 28,923 fish.

The total of 150,210 Chinook salmon were harvested in the summer troll fishery, of which 4,256 were of Alaskan hatchery origin and 3,573 counted toward the Alaska hatchery add-on, resulting in a treaty harvest of 146,637. A total of 1,028 permits participated in the summer fishery.

The total harvest for all troll fisheries in the 2011 accounting year was 242,121 Chinook salmon, with 220,725 counting as treaty harvest.

Table 65 Preliminary 2011 troll fishery Chinook salmon harvest by season.

Gear/Fishery	Total Harvest	Alaska Hatchery Harvest	Alaska Hatchery Addon	Terminal Exclusion Harvest	Total Term. Exclusion/Alaska Hatchery Addon	Treaty Harvest
Winter Troll	50,826	3,780	3,174	0	3,174	47,652
Spring Troll	41,082	16,958	14,459	189	14,648	26,434
Summer Troll						
First Period	120,512	3,333	2,798	0	2,798	117,714
Second Period	29,698	923	775	0	775	28,923
Summer Total	150,210	4,256	3,573	0	3,573	146,637
Total Traditional Troll	242,118	24,995	21,206	189	21,395	220,722
Annette Is. Troll	3	0	0	0	0	3
Total Troll Catch	242,121	24,995	21,206	189	21,395	220,725

Note: The Alaska hatchery add-on and Treaty numbers will change when 2011 sport catch estimates are received.

Net Fisheries

With the exception of directed gillnet harvests of Chinook in SEAK terminal area regulatory Districts 108 and 111 targeting Chinook as provided in the transboundary river agreement (Chapter 1), harvests of Chinook salmon in the net fisheries are primarily incidental to the harvest of other species and only constituted a small fraction (<1.0%) of the total net harvest of all species.

Due to preseason forecasts and inseason estimates of low returns of both Taku and Stikine River Chinook salmon neither of the District 108 or District 111 directed Chinook drift gillnet fisheries were opened in 2011.

Recreational Fisheries

The preseason abundance index generated for the SEAK AABM fishery in spring 2011 was 1.69, resulting in a preseason sport allocation of 54,515 treaty fish under the harvest management plan adopted by Alaska Board of Fisheries. Based on this pre-season AI and the SEAK King Salmon Management Plan, a sport fish angler was allowed to use two rods from October through March, the bag and possession limit for residents was three fish 28 inches or over in length and no annual limit, and for non-residents the bag and possession limit was two fish 28 inches or greater in length in May 2011 and one fish 28 inches or greater in length during April 2011 and from June 2011 through April 2012, with a 5 fish annual limit.

The 2011 recreational fishery had an estimated preliminary harvest of 60,538 Chinook salmon of which 49,878 counted as Treaty harvest. The final total and Treaty harvest in the sport fishery for 2011 will be available in late fall of 2012. Comparisons of the 2011 recreational fishery harvest with recent years indicate that the preliminary harvest of 60,538 fish is 13% below the recent five-year average and 16% below the recent ten-year average. The 2011 freshwater recreational fishery for Chinook salmon 20 inches or greater in length in the Situk River near Yakutat was closed all season due to low abundance of large fish, and Chinook salmon 20 inches or greater could not be removed from the water if incidentally caught. Onsite creel surveys indicated a small number of Chinook less than 20 inches were harvested in 2011.

During 2011, genetic samples were collected from 3,979 large Chinook salmon (28 inches or greater in Total Length), 82 genetic samples from small Chinook salmon (under 28 inches in TL) in Terminal Harvest Areas (THAs), and 269 genetic samples were collected from small Chinook salmon harvested outside of THAs.

Southeast Alaska Coho Salmon Fisheries

Attachment B of the June 30, 1999 U.S.-Canada Agreement relating to the Pacific Salmon Treaty specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2011, troll CPUE in Area 6 in the early weeks of the fishery averaged 22, which was right at the highest boundary area conservation trigger of 22. The information was relayed to Canadian managers and based on an assessment of applicable fishery information on both sides of the boundary it was agreed that closures were not warranted. The mid-July projection of region-wide total commercial harvest was greater than the 1.12 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2011 all-gear catch of coho salmon totaled 2.08 million fish of which 1.77 million (87%) were taken in commercial fisheries. The troll catch of 1.31 million fish was 86% of the 10-year average of 1.53 million fish and accounted for 63% of the commercial catch. Average weekly power troll CPUE was 1% below the 10-year average while overall region wild stock abundance appeared to be above the 10-year average. The average dressed weight of 5.35 lbs. for troll-caught fish was the smallest on record, with fish caught in late June and early July being near average but showing little increase in weight by mid-September. Many fish left outer coastal waters for straits and passages in July and early August, contributing to high catch rates in some inside seine and sport fisheries. The purse seine harvest of coho salmon (352,000 fish) was 8% above the 10-year average while the drift gillnet harvest of 285,900 fish was 23% below average. The set gillnet harvest of 125,800 fish in the Yakutat area was 8% below the 10-

year average, with 64% of the catch taken in the Situk-Ahrnklin Lagoon and 27% in the Tsiu River system. A very preliminary estimate of the Southeast Alaska sport catch (311,500) fish was 11% above the 10-year average and accounted for 13% of the combined region catch, the same percentage as in 2003 but higher than all other years on record.

Wild production accounted for 1.54 million fish (74%) in the commercial catch compared with a recent 10-year average of 1.92 million fish (81%). The hatchery percentage of the commercial catch (26%) was the highest on record. Of the estimated hatchery contribution of 536,400 fish, over 99% originated from facilities in Southeast Alaska. Escapement counts and estimates were within or above goal throughout the region. The combined peak count in the 14 surveyed streams in the Ketchikan area of 5,202 spawners was within the goal of 4,250-8,500 spawners. Extended periods of high precipitation restricted survey opportunity and may have affected counts. The total escapement of 2,137 spawners to Hugh Smith Lake ranked 5th highest in 30 years and was well-above the biological goal range (500-1,600 spawners). The strong escapement to Hugh Smith Lake resulted from a low exploitation rate (preliminary estimate = 41%) on a total run estimated at 3,647 adults, 9% below average. The estimated return was the product of above-average smolt production (37,900 smolts) and below-average marine survival (9.6%).

Marine survival was below-average for all inside indicator stocks and above-average for Ford Arm Creek on the outer coast. Marine survival for Auke Creek, the Berners River, the Chilkat River and Hugh Smith Lake averaged 10.4% (range 9.1-13.1%) compared with a 10-year mean-average of 14.5%. Ford Arm Creek presmolts survived at a rate of 12.7% compared with a 10-year average of 11.0%. Exploitation rate estimates were low for all indicator stocks except Ford Arm Creek where most of the most run departed the ocean unusually early in August and incurred an extremely high exploitation rate estimated at 58% in the Khaz Bay seine fishery, resulting in a record 82% all-gear exploitation rate, despite a record low troll exploitation rate of only 24% and the lowest marine sport exploitation rate (<1%) in 16 years. In contrast, the estimated all-gear exploitation rate on the Hugh Smith Lake stock of only 41% continued the trend toward lower all-gear exploitation rates for that system from an average of 75% in the 1990s to 53% during 2000-2010. The Alaska troll fishery exploitation rate on the stock was only 21%, the 3rd lowest rate on record and well below the historical average of 35% during 1982-2010 and the decade peak average of 41% in the 1990s. The Alaska troll fishery exploitation rate on the Auke Creek stock was estimated at only 17% in 2011 compared with a 10-year average of 26% and a long-term average of 30%. The all-gear exploitation rate on that stock was estimated at 35% compared with a long-term average of 40%.

The 2011 region-wide summer troll coho fishery began on July 1. There was a mid-season closure during August 10-14 and the fishery was closed on September 20.

Table 66 Coho salmon harvest in Southeast Alaska in 2011 by gear type (Preliminary).

Gear Type	Harvest
Troll	1,313,600
Purse Seine	352,000
Drift Gillnet	285,900
Set Gillnet	125,800
Sport (marine and freshwater)	311,500
Total	2,077,300

Preliminary 2011 Chinook and Coho Salmon Catches in Washington and Oregon Fisheries

Introduction

This report describes the conduct of United States (U.S.) fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2011 in the area north of Cape Falcon, Oregon and south of the U.S./Canada border. These fisheries were conducted under pre-season management plans that were consistent with Annex IV of the Pacific Salmon Treaty (PST, 2008) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 for Southern Coho Management.

An overview of the Chinook and coho salmon conservation challenges facing managers during the 2011 pre-season planning process in this region is provided. The conduct of major fisheries is described, and estimates of landed catch, where available, are compared to pre-season catch limits or expectations for Chinook (Table 67) and coho (Table 68). For perspective, catches for those fisheries since 2006 are also presented. Catch estimates for the 2011 fisheries are preliminary and subject to change. Estimates of spawning escapements and abundance of coho and Chinook stocks are not available at this time.

Pre-season Planning

Pre-season planning for southern U.S. fisheries of interest to the PSC is a coordinated activity involving Tribal, state and federal management entities, with the involvement of public conservation and fishing interests. The Pacific Fisheries Management Council (PFMC) conducts a series of public meetings to consider options for ocean fishery season structures while the tribes and states conduct government-to-government and public, open meetings throughout the region to construct and analyze season options for fisheries in the inside waters of the Columbia River, coastal Washington and Puget Sound. Participants in these various planning sessions evaluate the biological and social/economic consequences of options for the outside (ocean) and inside (marine and freshwater) fisheries, including the anticipated impacts on U.S. southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. The final product is a complete set of fishery plans constructed to achieve conservation goals, domestic fishery objectives, and legal obligations including the PST, assuming fisheries are conducted as planned and pre-season abundance estimates are accurate.

Chinook Salmon Management

Under the 2008 Pacific Salmon Treaty Agreement, southern U.S. fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require the non-ceiling index for aggregated Southern U.S. fisheries on Chinook stocks not achieving their management objectives to be no greater than 60% of the levels estimated for the 1979 – 1982 base period.

Conservation obligations associated with the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River have been more constraining to southern U.S. fisheries than PST obligations. Catch quotas for the 2011 U.S. ocean fisheries in the area north of Cape Falcon, Oregon, were defined by the impact limits on ESA-listed lower Columbia River natural tule fall Chinook stocks and the abundance of other healthy, harvestable stocks in the area. Puget Sound fishing seasons were limited by the impact limits defined for ESA-listed Puget Sound Chinook.

Coho Salmon Management

In 2011 Canadian fishery managers informed the U.S. that the Interior Fraser management unit remained in *low* categorical abundance status, thus fisheries in the region were constrained to ensure that the exploitation rate on this management unit did not exceed 10.0% as defined by the PST Southern Coho Management Plan. All U.S. natural spawning coho management units specified by the PST Southern Coho Management Plan were forecasted to be in moderate or abundant status.

The impact on natural coho stocks of seasons and catch limits adopted for southern U.S. fisheries were predicted using the FRAM. The total exploitation rate on the Interior Fraser management unit was predicted to be 10.0% in Southern U.S. fisheries. Seasons and coho quota levels for U.S. ocean fisheries were constrained primarily by the management objectives of ESA-listed lower Columbia River natural coho, while limits to fisheries in northern Puget Sound and the Strait of Juan de Fuca were primarily constrained by management objectives for the Interior Fraser coho management unit.

North of Cape Falcon Ocean Fisheries

Fisheries in this area are managed to meet conservation objectives for ESA listed stocks, Columbia River natural stocks and brood stock goals for hatchery stocks. Within these stock management objectives, ocean fishing seasons are defined that meet legal requirements of Tribal treaties and allocations between non-Tribal troll and sport fisheries. Ocean fishery seasons are also constructed to ensure a balance of opportunity for harvest with the inside fisheries. Lower Columbia River hatchery coho and Columbia River hatchery fall Chinook have historically been the major stocks contributing to catches of ocean fisheries in the North of Cape Falcon area.

Chinook and coho salmon catch quotas were defined for the 2011 ocean Tribal, non-Tribal troll and sport fisheries. Ocean fishery quotas for Chinook salmon were defined by impact limits of ESA-listed lower Columbia River natural tle fall Chinook stocks. Ocean fishery quotas for coho salmon were defined by impact limits of ESA-listed lower Columbia River natural coho, Interior Fraser coho management units, and agreements that allocated the total allowable impacts between ocean and inside fisheries.

Non-Tribal Fisheries

Pre-season quota levels for the non-Tribal troll fisheries were 30,900 Chinook and 12,800 coho (with healed ad-clip, hereinafter referred to as marked). The preliminary estimates of non-Tribal harvest in the 2011 North of Falcon troll fishery are 29,700 Chinook, (96% of the coast-wide quota), and 3,500 coho (28% of the coast-wide quota). Trollers harvested 20,391 Chinook in the May 1 – June 30 Chinook-only fishery and the remaining 9,313 Chinook were harvested in the all-species fishery between July 1 and September 15. The coho catch represents harvest in a mark-selective fishery.

Tribal Troll Fishery

The Treaty troll fishery was constrained by a Chinook quota of 41,000 and a coho quota of 42,000. A May/June Chinook directed fishery and a July 1 through September 15 all species fishery were conducted. The season concluded with a catch of 31,400 Chinook (77% of the quota) and 13,500 coho (32% of the quota).

Sport Fisheries

Pre-season quotas for the sport fishery were 33,700 Chinook (non mark-selective equivalent of 30,900) and 67,200 marked coho. The 33,700 Chinook quota included 4,800 in the June mark-selective fishery and 28,900 in the non-selective fishery. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 30,700 Chinook (91% of the coast-wide quota) and 45,600 coho (68% of the coast-wide quota). A description of the resulting season structure and catches by management area follows.

U.S./Canada border to Cape Falcon

Sport salmon fishing opened coast-wide for all species except coho on Saturday, June 18 with a quota of 4,800 marked Chinook. The fishery closed on its automatic closure date, June 25. The catch estimate for the coast-wide mark-selective sport fishery is 2,400 Chinook (50%). The Chinook minimum size limit was 24 inches.

Preliminary estimates of Chinook retained and the percentage of legal size Chinook encountered that were retained and released in the Chinook mark-selective sport fishery, June 18 – June 25, 2011, for Areas 1-4 combined.		
Chinook retained	Retained %	Released
2,400	67%	33%

A detailed report of this fishery, including catch, effort and results of sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in early 2012.

Columbia Ocean Area (including Oregon)

All-species salmon sport fishing opened in Ocean Area 1 (Columbia Ocean Area) on Sunday, June 26 with a quota of 33,600 marked coho and a guideline of 7,400 Chinook (revised in-season to 7,710 following an impact-neutral rollover of the remainder from the June mark-selective fishery quota). The fishery closed on its automatic closure date, September 30. The catch estimates for Area 1 are 6,900 Chinook (89% of the revised guideline) and 26,700 coho (79% of the quota). An additional 300 Chinook were harvested in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches, with a sub-area closure in the Columbia Control Zone.

Preliminary estimates of coho encounters (retained and released), and mark rate in the Area 1 coho mark-selective sport fishery, June 26 – September 30, 2011.			
coho retained	coho released	Total encounters	Mark %
26,700	24,400	51,100	54%

Westport

Ocean Area 2 (Westport) opened for all-species salmon sport fishing on Sunday, June 26 with a quota of 24,860 marked coho and a guideline of 16,900 Chinook (revised in-season to 17,600 following an impact-neutral rollover of the remainder from the June mark-selective fishery quota). The fishery closed on its automatic closure date, September 18. The catch estimates for Area 2 are 17,100 Chinook (98% of the revised guideline) and 13,800 coho (56%). An additional 1,900 Chinook were harvested in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches. Grays Harbor Control Zone was closed beginning August 1.

Preliminary estimates of coho encounters (retained and released), and mark rate in the Area 2 coho mark-selective sport fishery, June 26 – September 18, 2011.

coho retained	coho released	Total encounters	Mark %
13,800	20,200	34,000	42%

La Push

Ocean Area 3 (La Push) opened for all-species salmon sport fishing on Sunday, June 26 with a quota of 1,750 coho (revised in-season to 2,600 following an impact-neutral transfer of 1,000 coho from the Neah Bay sub-area quota to the La Push sub-area quota) and a guideline of 1,400 Chinook (revised in-season to 1,460 following an impact-neutral rollover of the remainder from the June mark-selective fishery quota). The fishery closed on its automatic closure date, September 18, and reopened September 24 through October 9. The catch estimates for Area 3 during the all-species fishery are 1,500 Chinook (103% of the revised guideline) and 2,100 coho (81% of the revised quota). The Chinook minimum size limit was 24 inches.

Preliminary estimates of coho encounters (retained and released), and mark rate in the Area 3 coho mark-selective sport fishery, June 26 – September 18, 2011.

coho retained	coho released	Total encounters	Mark %
2,100	4,100	6,200	34%

Neah Bay

Ocean Area 4 (Neah Bay) opened for all-species salmon sport fishing on Sunday, June 26 with a quota of 6,990 marked coho (revised in-season to 5,990 following an impact-neutral transfer of 1,000 coho from the Neah Bay sub-area quota to the La Push sub-area quota) and a guideline of 3,200 Chinook (revised in-season to 3,330 following an impact-neutral rollover of the remainder from the June mark-selective fishery quota). The fishery closed on its automatic closure date, September 18. The catch estimates for Area 4 are 2,800 Chinook (84% of the revised guideline) and 3,000 coho (50%). An additional 200 Chinook were harvested in the spring mark-selective fishery. The Chinook minimum size limit was 24 inches.

Preliminary estimates of coho encounters (retained and released), and mark rate in the Area 4 coho mark-selective sport fishery, June 26 – September 18, 2011.

coho retained	coho released	Total encounters	Mark %
3,000	4,700	7,800	40%

North of Cape Falcon Inside Fisheries

Washington Coastal River Fisheries

North Washington Coastal Rivers

Net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The north coastal rivers net harvest (all by Tribal fisheries) includes catch for the Copalis, Moclips, Ozette, Sooes, Quillayute system, Hoh, Queets, and Quinault Rivers. The 2011 commercial net fisheries in north coastal rivers have harvested an estimated 11,100 Chinook and 78,600 coho through November 15.

Recreational fisheries conducted in the Quillayute, Hoh and Queets river systems, included mark-selective fisheries for hatchery Chinook salmon. Recreational fisheries for hatchery coho salmon conducted in the Quillayute River system also were mark-selective. Harvest or impact estimates for these fisheries are unavailable at this time.

Grays Harbor

Harvest for Grays Harbor includes catch from both the Humptulips and Chehalis Rivers through November 15. The 2011 Tribal net fisheries in Grays Harbor, and including fisheries in the Humptulips and Chehalis rivers, harvested an estimated 6,200 Chinook salmon and 21,300 coho salmon. Non-Indian commercial fisheries conducted in the northern portion of Grays Harbor near the Humptulips River (2C) harvested 1,900 Chinook salmon and less than 100 coho salmon (mark-selective). An additional 3,500 coho were harvested in the non-Indian commercial gillnet fishery in Areas 2A & 2D. Sport fisheries conducted in the Chehalis and Humptulips rivers were mark-selective for coho salmon. Recreational fisheries harvest or impact estimates are unavailable at this time.

Columbia River Fisheries

Tribal and non-Tribal net and sport salmon fisheries in 2011 occurred during the winter/spring (January – June 15), summer (June 16 – July) and fall (August – October) periods. All fisheries were constrained by impacts on ESA listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA listed upper Columbia River spring Chinook, Snake River spring/summer Chinook and wild winter steelhead. Summer fisheries were constrained by impacts to ESA listed Snake River sockeye. Fall fisheries were mainly constrained by impacts to ESA listed wild lower Columbia tule fall Chinook and wild lower Columbia River coho as well as Group B steelhead which are part of the Snake River steelhead distinct population segment (DPS).

Columbia River salmon fisheries are developed and regulated to meet conservation standards. Fisheries are managed to operate within the impact limits set for ESA listed stocks, meet the objectives for healthy Columbia River natural stocks, and ensure brood stock needs are met for hatchery salmon. Mainstem Columbia River fisheries are also developed and managed to remain within the requirements of the 2008 – 2017 *US v. Oregon* Management Agreement.

Winter-Spring Fisheries

Non-Tribal Net

The mainstem Winter/Spring commercial fishery has operated under mark-selective fishery regulations since 2002. Winter sturgeon fisheries consisted of four fishing periods conducted during January 18 through February 8 in the area downstream Bonneville Dam. A total of 75 hatchery Chinook were landed. The winter/spring salmon season consisted of four fishing periods (36 hours total) between March 29 and May 19. Tangle nets (4¼-inch minimum mesh) were required for the first two openers; then 8-inch minimum mesh was required. The fishery occurred downstream of Bonneville Dam, with time, area, and gear restrictions in place for all openers. Landings included 4,500 hatchery Chinook. Sampling program details for these fisheries are not available at this time.

Sport

Mainstem river mark-selective sport fisheries began in 2001. The area below Bonneville Dam was open January 1 – April 19 and May 15-June 15 for hatchery Chinook retention with specific area and time

restrictions in place. Catch estimates include 11,700 hatchery Chinook. Mark-selective recreational fisheries also occurred during March 16 – May 10 and May 28 – June 15 in the area from Bonneville Dam upstream to McNary Dam (Zone 6). Zone 6 catch estimates total 2,700 hatchery Chinook. Sampling program details for these fisheries are not available at this time.

Tribal

Tribal fisheries are not mark-selective. Tribal fisheries are conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. No spring Chinook were harvested in the commercial winter season set-line sturgeon fishery (January 1 – 31). Seven spring chinook were harvested in the winter gillnet fishery (February 1 – March 21). Ceremonial and subsistence (C&S) fisheries include harvest from platform, hook and line, and gillnet fisheries through Tribal permits. No commercial gillnet seasons were conducted for spring Chinook during 2011, however commercial sales were allowed for platform and hook and line caught fish beginning May 10. Harvest estimates from C&S and commercial fisheries total 15,500 spring Chinook. Fisheries are also conducted in Zone 6 tributaries and in Columbia and Snake River Tributaries upstream from McNary Dam. Tributary harvest is not reported in this document.

Summer Fisheries

Non-Tribal Net

Summer season fisheries are not mark-selective. Two fishing periods (16 hours total) occurred on June 16 – 17 and June 22 – 23 in the area below Bonneville Dam. Time, area, and gear restrictions were in place for all summer season commercial fisheries. Landings are estimated at 5,100 upper Columbia summer Chinook.

Sport

Summer season Chinook fisheries were mark-selective. The area below Bonneville Dam was open for adult Chinook retention from June 16 – July 18. An estimated 5,400 hatchery Chinook were kept during the summer season below Bonneville Dam. The area from Bonneville Dam upstream to Priest Rapids Dam was open for adult hatchery Chinook retention from June 16 – July 31. Retained catch from this area was estimated at 150 adult hatchery Chinook. Sampling program details for these fisheries are not available at this time.

Tribal

Tribal fisheries are not mark-selective. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Mainstem fisheries target Upper Columbia summer Chinook. Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. In 2011, seven weekly commercial gillnet fishing periods were conducted June 16 – July 30. Platform and hook and line fisheries also occurred throughout the summer season and fish were sold commercially or retained for subsistence use. Harvest estimates total 20,600 Chinook from mainstem fisheries. Minor summer season fisheries were also conducted in some Zone 6 tributaries and in tributaries upstream of McNary dam. Tributary harvest is not reported in this document.

Fall Fisheries

Non-Tribal Net

Fall season fisheries are not mark-selective. The Early Fall mainstem fisheries consisted of eight fishing periods (72 hours total) during August 4 – 31. Harvest estimates total 25,300 Chinook. The Late Fall season consisted of ten fishing periods (111 hours total) during September 18 – October 20. Harvest estimates total 27,200 Chinook. Time, area, and gear restrictions were in place for all fall season commercial fisheries, which minimized handling of ESA listed salmonid species including wild tule Chinook and lower Columbia coho.

Sport

Fall season fisheries were mark-selective for coho salmon. Sampling program details for these fisheries are not available at this time. The Buoy 10 fishery was open August 1 through December 31, with a two fish, one Chinook bag limit effective through August 28. Chinook retention was prohibited August 29 through September 15. Catch estimates include 11,100 Chinook and 7,300 hatchery coho. The mainstem sport fishery from the Rocky Point – Tongue Point line upstream to Bonneville Dam was open August 1 – December 31 with a two fish, one Chinook bag limit. Restrictions prohibiting Chinook retention were in effect during mid-late September in the area below the Lewis River to minimize handling of ESA listed Chinook. Catch estimates from this fishery include 17,300 Chinook. The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington) was open August 1 – December 31 with a two fish daily limit. Catch estimates include 3,100 Chinook.

Tribal

Tribal fisheries are not mark-selective. Tribal fisheries are conducted in mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Platform, hook and line fisheries also occur in accordance with MOUs in the area immediately below Bonneville Dam. Platform and hook and line fisheries occurred throughout the fall season. Mainstem platform and hook and line harvested fish could be sold from August 1 – October 8. The commercial gillnet fishery consisted of seven weekly fishing periods August 22 – October 7. Preliminary harvest estimates total 129,500 Chinook and 24,300 coho. Fisheries are also conducted in some Zone 6 tributaries and in the Snake and Clearwater Rivers. Harvest in tributary fisheries is not reported in this document.

Puget Sound Fisheries

Puget Sound marine fisheries of interest to the Pacific Salmon Commission in 2011 were regulated to meet conservation and allocation objectives for Chinook, coho, chum, pink, and sockeye salmon stocks, per Tribal-State agreement. For Puget Sound Chinook listed under the ESA, fisheries were managed according to the Puget Sound Chinook Harvest Management Plan. This management plan defines limits to total exploitation rates for natural stocks and was determined by the National Marine Fisheries Service (NMFS) to be consistent with requirements specified under the ESA 4(d) Rule.

Release requirements were applied to many sport and net fisheries for Chinook, coho and chum salmon, the latter to protect ESA-listed Hood Canal and Strait of Juan de Fuca summer chum.

Puget Sound marine fisheries were constrained by the need to meet management objectives for ESA listed Puget Sound Chinook, including mid-Hood Canal, Skokomish, Nooksack Early, Skagit Spring, and Green

River Chinook. Interior Fraser River Coho were the primary coho stock of concern in the Strait of Juan de Fuca and northern Puget Sound.

Strait of Juan de Fuca Sport

Marine salmon management area 5 and 6 were open to Chinook retention (non-selective) February 16 – April 10. Sport fishing regulations allowed retention of marked Chinook and marked coho beginning July 1. Chinook mark selective fishing opportunity was limited to the period through August 15. The sport fishery remained open to a coho mark selective opportunity through September 30 in Area 6 and through September 18 in Area 5. Wild coho retention was legal September 19 – 30 in Area 5. Chinook retention was legal in Area 5 from November 1 – November 30, and Area 6 from October 1 – October 31. The preliminary estimate of Chinook retained for the entire opened fishing period July 1 – September 30 was 4,700. A preliminary estimate of the total catch of coho for the mark-selective and non-selective opened periods was 16,300.

Preliminary estimates of Chinook retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 5 sport mark-selective fishery, July 1 – August 15, 2011.

Chinook retained	Chinook released	Total encounters	Mark % (legal size)
4,500	13,400	17,900	40%

Preliminary estimates of coho retained, released and the mark rate in the Area 5 coho mark-selective sport fishery, July 1 – September 18, 2011.

coho retained	coho released	Total encounters	Mark %
7,500	18,900	26,400	37%

A detailed report of this fishery, including catch, effort and results of sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in early 2012.

Strait of Juan de Fuca Tribal Troll (Area 4B, 5 and 6C)

The preliminary estimates of the on-going 2011-12 Strait of Juan de Fuca Tribal troll fishery are 3,800 Chinook and 100 coho. The Tribal catch estimates from this area do not include catches from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon Tribal troll summary.

Strait of Juan de Fuca Net

Preliminary estimates of the 2011 catch in the Strait of Juan de Fuca Tribal net fisheries (no non-Tribal net fisheries in the Strait of Juan de Fuca) are 300 Chinook and 2,700 coho salmon.

San Juan Islands Net (Areas 6, 7 and 7A)

Preliminary estimates of the 2011 catch in the San Juan Island net fishery directed at sockeye, pink, or chum salmon total 100 Chinook and 1,000 coho salmon for the non-Tribal fishery. Tribal fishery landings from this area total 5,500 Chinook and 10,000 coho.

San Juan Islands (Area 7) Sport

Marked Chinook retention was allowed in the entire area for the period December 1, 2010 – April 30, 2011. The numbers of Chinook retained and released by anglers during this fishery were estimated by an intensive sampling program and are presented in the table below. A detailed report of this fishery, including catch, effort and results of sampling and monitoring programs, is available from the Washington Department of Fish and Wildlife. The southern and southeastern (Rosario Strait) portions of this catch area were again closed July 1 – September 30 to protect Puget Sound Chinook salmon. The remaining area was open for retention of Chinook and coho salmon from July 1 – October 31. Release of unmarked coho salmon was required for the months of August through September. December was open for marked Chinook retention. Additional sub area closures are described in the Washington State Sport Fishing Rules Pamphlet. Catch estimates and sampling information for this area are not available at this time.

Estimated Chinook retained, released (legal and sub-legal size) and the legal size mark rate in the Area 7 sport mark-selective fishery, December 1 – April 30, 2011.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
2,400	3,400	5,800	58%

Inside Puget Sound (Areas 8-13) Sport

Mark-selective sport fisheries directed at hatchery Chinook were conducted in Area 8.1 (Skagit Bay & Saratoga Passage), Area 8.2 (Port Susan & Port Gardner), Area 9 (Admiralty Inlet), Area 10 (Seattle – Bremerton), and Area 11 (Tacoma) during the winter (October, 2010 – April, 2011) period, and in Areas 9, 10, 11 and 13 (South Puget Sound) during the summer (July – September, 2011) period.

Puget Sound Chinook mark-selective sport fisheries conducted during the winter and summer periods, 2010-2011.	
Areas	Season
8.1 & 8.2	November 1, 2010 – April 30, 2011
9	November 1-30, 2010; Jan 16 – April 15, 2011; and July 16 – August 31, 2011
10	October 1, 2010 – January 31, 2011, and July 16 – August 31, 2011
11	February 1, 2010 – April 30, 2011 and June 1 – September 30, 2011
13	May 1 – September 30, 2011

Detailed reports of these fisheries, including retained and released encounters, effort and mark rates from sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in the spring of 2012.

Mark-selective sport fisheries directed at hatchery coho were conducted in Area 13 for the period July 1 to October 31, 2011.

Puget Sound Marine Net (Areas 8-13)

To achieve conservation objectives for Puget Sound Chinook and coho, very limited net fishing opportunities directed at abundant returns of hatchery Chinook and both hatchery and natural returns of coho were planned for 2011.

Puget Sound Rivers Fisheries

Tribal net and non-Tribal sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject in part to in-season adjustment. The Net harvest (in Puget Sound river by Tribal fisheries) included catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound.

Mark selective fisheries directed at Chinook salmon were also conducted in the following Puget Sound rivers with PSC Chinook CWT exploitation rate indicator stocks or DIT groups:

Chinook mark-selective sport fisheries conducted in Puget Sound rivers, 2010-2011.	
River	Season
Cascade River (Skagit)	June 1 – July 15
Skykomish River (Snohomish)	June 1 – July 31
Carbon River (Puyallup)	September 1 – November 30
Nisqually River	July 1 – December 31
Skokomish River	August 1 – September 30

No mark-selective sport fisheries were conducted in 2011 in any Puget Sound rivers with PSC coho CWT exploitation rate indicator stocks or DIT groups.

Table 67 Preliminary 2011 Landed Chinook Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (rounded to the nearest 100)^{9/}

FISHERIES	2011			2010	2009	2008	2007	2006
	Precason		Preliminary Landed					
	Total Mortality ^{1/}	Landed ^{2/}						
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (Areas 3,4,4B) ^{3/}	56,800	50,500	44,800	39,600	15,700	23,000	28,600	42,000
Columbia Ocean Area and Westport (Area 1&2)	27,500	21,400	16,300	49,000	9,600	11,900	10,200	15,400
Sport (see text for quota information)								
Neah Bay (Area 4) ^{4/}	3,400	3,100	3,000	3,300	2,400	1,400	1,500	1,400
La Push (Area 3) ^{4/}	1,900	1,700	1,500	1,200	700	700	600	1,700
Westport (Area 2) ^{4/}	24,100	21,400	19,000	27,000	5,000	9,600	5,200	5,800
Columbia Ocean Area (Area 1) ^{4/}	8,300	7,500	7,200	7,200	5,200	3,700	2,200	2,300
INSIDE FISHERIES								
Sport ^{10/}								
Juan De Fuca (Areas 5&6) ^{5/}	12,000	7,600	4,700	11,500	11,200	4,800	6,200	4,700
San Juan Is. (Area 7)	9,200	5,600	n/a	3,200	4,100	5,800	5,000	3,300
Puget Sound (Area 8-13)	37,500	27,200	n/a	17,100	18,800	21,700	37,600	20,600
Puget Sound Rivers	16,200	15,500	n/a	15,900	14,600	15,200	19,400	17,000
North WA Coastal Rivers	n/a	n/a	n/a	1,300	1,000	800	700	700
Grays Harbor ^{7/}	n/a	n/a	n/a	2,400	1,000	0	1,700	1,700
Columbia R. (Spring) ^{6/}	n/a	n/a	14,400	32,600	17,200	22,100	7,800	8,200
Columbia R. (Summer) ^{6/}	n/a	n/a	5,600	2,600	2,500	3,200	2,700	5,300
Columbia R. (Fall) (incl. Buoy 10) ^{6/}	n/a	n/a	31,500	27,100	24,200	22,200	14,600	17,300
Commercial ^{11/}								
North WA Coastal Rivers	n/a	n/a	11,100	9,000	10,500	7,800	5,500	13,900
Grays Harbor (Area 2A-2D) ^{7/}	n/a	n/a	8,100	4,600	3,400	2,600	3,000	3,700
Columbia R. Net (Wint/Spr.) ^{8/}	n/a	n/a	20,000	52,000	17,300	27,100	8,500	12,800
Columbia R. Net (Sum) ^{8/}	n/a	n/a	25,700	20,500	14,100	10,400	6,500	21,100
Columbia R. Net (Fall) ^{8/}	n/a	n/a	182,000	163,800	133,600	134,700	49,000	102,300
Strait Juan de Fuca (Areas 4B,5,6C) net and troll	11,400	9,700	4,100	4,500	3,600	6,400	4,500	2,000
San Juan Island (Areas 6,7, 7A)	8,100	5,000	5,600	6,800	1,000	100	2,600	5,300
Puget Sound Marine (Areas 8-13;7B-D)	53,500	52,300	64,000	43,300	44,700	61,000	64,200	69,200
Puget Sound Rivers	45,200	45,200	33,100	38,600	35,100	40,800	55,700	40,900

Footnotes:

1/ Nominal total mortality is not adjusted for adult equivalents (AEQ) and does include non-retention mortality. Total Mortality is estimated by FRAM as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.

2/ For the ocean fisheries, this column shows the Chinook troll and recreational quotas used for 2011 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 71,900 and recreational Chinook quota 33,700. See text for any in-season adjustments.

3/ Includes Area 4B catch during the PFMC management period (May 1 – September 15); Area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.

4/ Includes catches from the spring mark selective fishery.

5/ 2011 catch represents July 1 – September 30 in Area 5 only, since Catch Record Card (CRC) annual estimates are not yet available.

6/ Mainstem retained sport catch only (upstream to McNary Dam for spring, Priest Rapids Dam for summer and to Hwy 395 for fall). See tables 22 – 23 in the annual Joint Staff Report regarding spring and summer Chinook and tables 29 – 31 in the annual fall report. http://wdfw.wa.gov/fishing/crc/staff_reports.html.

7/ Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport and Lower Chehalis and Humptulips River for net estimates.

8/ Mainstem retained catch only (Columbia River mouth upstream to McNary Dam). Catch data from annual Joint Staff Reports. Winter and spring catch T7 (Tribal) and T18 (non-Tribal). Summer catch is from T10. Fall catch from annual fall report T20, 24 and 26.

9/ Includes catches from mark-selective fisheries where estimates are available.

10/ Sport catch after March 2008 is preliminary.

11/ Includes non-Tribal and tribal commercial, as well as tribal C&S for all gear types.

Table 68 Preliminary 2011 Landed Coho Catches for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission (rounded to the nearest 100)^{6/}

FISHERIES	2011			2010	2009	2008	2007	2006
	Preseason		Preliminary Landed					
	Total Mortality ^{1/}	Landed ^{2/}						
OCEAN FISHERIES								
Troll								
Neah Bay and La Push (Areas 3,4,4B) ^{3/}	47,900	43,000	14,800	9,600	64,200	14,000	41,700	32,800
Columbia Ocean Area and Westport (Area 1&2)	18,700	11,800	2,200	5,000	29,200	2,400	16,700	1,800
Sport (see text for quota information)								
Neah Bay (Area 4)	9,300	7,000	3,000	3,700	13,300	2,200	10,600	6,000
La Push (Area 3)	2,200	1,700	2,100	1,200	6,900	500	2,800	1,900
Westport (Area 2)	31,500	24,900	13,800	12,600	53,900	7,500	23,000	8,800
Columbia Ocean Area (Area 1)	40,000	33,600	26,700	24,900	83,800	10,800	65,800	24,800
INSIDE FISHERIES								
Sport ^{7/}								
Juan De Fuca (Areas 5&6) ^{4/}	50,200	41,100	16,300	20,500	51,100	11,400	33,900	9,700
San Juan Is. (Area 7)	700	600	n/a	600	800	200	600	100
Puget Sound (Area 8-13)	31,700	30,000	n/a	6,500	44,700	9,700	30,800	16,800
Puget Sound Rivers	35,500	33,800	n/a	9,900	40,500	15,000	32,100	13,700
North WA Coastal Rivers	3,900	3,700	n/a	6,100	7,400	1,500	1,700	600
Grays Harbor ^{5/}	9,400	9,000	n/a	12,300	15,900	3,200	4,400	2,200
Columbia River Buoy 10	8,300	7,000	7,300	8,000	48,100	8,600	8,400	3,700
Commercial ^{8/}								
North WA Coastal Rivers	82,000	80,400	78,600	97,100	126,500	50,200	26,800	30,800
Grays Harbor (Areas 2A-2D) ^{5/}	37,300	36,600	24,900	31,100	28,200	19,400	11,800	9,600
Strait Juan de Fuca (Areas 4B,5,6C) net and troll	5,200	5,100	2,800	3,300	3,300	1,200	2,600	2,900
San Juan Island (Areas 6,7, 7A)	8,100	6,400	11,000	4,800	6,400	200	1,900	800
P. Sound Marine (Areas 8-13, 7B-D)	198,200	194,300	132,000	101,500	173,600	147,400	132,700	148,100
Puget Sound Rivers	104,200	102,200	88,900	62,800	89,700	85,400	85,400	118,700

Table 68 Footnotes:

- 1/ Estimates of total mortality include non-retention mortality. Total Mortality is estimated by FRAM as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality.
- 2/ For ocean fisheries this column shows the coho troll and recreational quotas used for 2011 pre-season fishery planning as distributed by ocean area. Pre-season total troll quota is 54,800 and recreational marked coho quota is 67,200. See text for any in-season adjustments.
- 3/ Includes area 4B catch during the PFMC management period (May 1 – September 15); area 4B Treaty troll catch outside PFMC period included under Strait Juan de Fuca net and troll.
- 4/ 2011 catch represents selective fisheries July 1 – September 30 in area 5 only, since CRC annual estimates are not yet available.
- 5/ Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport estimates and Lower Chehalis and Humptulips Rivers for net estimates.
- 6/ Includes catches from mark-selective fisheries where estimates are available.
- 7/ Sport data after March 2008 are preliminary.
- 8/ Includes non-Tribal and tribal commercial, as well as tribal C&S for all gear types.

Table 69 Mark-Selective non-tribal Chinook and Coho Fisheries by Area and Year

Selective Coho	2011	2010	2009	2008	2007	2006
Ocean Troll						
Cape Flattery & Quillayute (Areas 3&4)	yes	yes	yes	yes	yes	yes
Columbia R & Grays Harbor (Areas 1 & 2)	yes	yes	yes	yes	yes	yes
Ocean Sport						
Neah Bay (Area 4)	yes	yes	yes	yes	yes	yes
LaPush (Area 3)	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2)	yes	yes	yes	yes	yes	yes
Col. R. (Leadbetter Pt. to Cape Falcon)	yes	yes	yes	yes	yes	yes
Inside Fisheries						
Sport						
Juan de Fuca (Areas 5 & 6)	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13 all year)	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes
Grays Harbor (Marine plus freshwater)	yes	yes	yes	yes	yes	yes
Columbia River Buoy 10	yes	yes	yes	yes	yes	yes
Commercial						
North WA Coastal Rivers	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	no	no	no	no	no	no
Strait of Juan de Fuca (Areas 4B,5 & 6C) Net & Troll	no	no	no	no	no	no
San Juan islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	no	no	no	yes	no	no
Puget Sound Rivers	no	no	no	no	no	no
Selective Chinook	2011	2010	2009	2008	2007	2006
Ocean Troll						
Cape Flattery&Quillayute (Areas 3,4 & 4B)	no	no	no	no	no	no
Columbia. R & Grays Harbor (Areas 1&2)	no	no	no	no	no	no
Ocean Sport						
Neah Bay (Area 4)	yes	yes	no	no	no	no
La Push (Area 3)	yes	yes	no	no	no	no
Grays Harbor/Westport (Area 2)	yes	yes	no	no	no	no
Col. R./Ilwaco (Leadbetter Pt. to Cape Falcon)	yes	yes	no	no	no	no
Inside Fisheries						
Sport						
Juan de Fuca (Area 5&6)	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	yes	no	no
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2A - 2D)	no	yes	no	no	no	no
Columbia River Sport - Winter/Spring	yes	yes	yes	yes	yes	yes
Columbia River Sport - Summer	yes	yes	no	no	no	no
Columbia River Sport - Fall	no	no	no	no	no	no
Commercial						
North WA Coastal Rivers	no	no	no	no	no	no
Grays Harbor (Areas 2A - 2D)	no	no	no	no	no	no
Columbia River Net-Winter/Spring	yes	yes	yes	yes	yes	yes
Columbia River Net - Summer	no	no	no	no	no	no
Columbia River Net - Fall	no	no	no	no	no	no
Strait of Juan de Fuca(4B,5 & 6C) Net & Troll	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	no	no
Puget Sound Marine (Areas 8 - 13)	yes	yes	no	no	no	no
Puget Sound Rivers	yes	no	no	no	no	no

"Yes" denotes that a mark selective fishery occurred, even if it only occurred in a subset of the fishing area, season, gear type, or user groups

Preliminary Review of the 2011 Washington Chum Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 2011 U.S. Chum salmon fisheries conducted in the Strait of Juan de Fuca (Salmon Catch Areas 4B, 5 and 6C), the San Juan Islands (Areas 6 and 7) and the Point Roberts area (Area 7A), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty. The harvest and abundance information provided are based on preliminary data reported through November 15 and is subject to correction and revision as additional information becomes available.

Mixed Stock Fisheries

Areas 4B, 5 and 6C

As in previous years, the Chum salmon fishery in Areas 4B, 5 and 6C was restricted to Treaty Indian fishers using gill nets. The fall Chum salmon fishery opened the week of October 10, with a schedule of six days per week and continued through November 12. A total of 1,421 Chum salmon were harvested. Including incidental catches of Chum salmon prior to the Chum-directed fishing season, 1,484 Chum salmon were harvested (Table 70). During the fall Chum fisheries in Areas 4B, 5, and 6C, there was a reported by-catch of two Steelhead; 1,230 Coho; and zero Chinook.

Areas 7 and 7A

Chum salmon fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling of 130,000 Chum salmon, unless a critically low level of abundance ($< 1,000,000$) is identified for those stocks migrating through Johnstone Strait ("Inside" Chum Salmon). Chapter 6 of the Annex specifies that Chum-directed fishing is not allowed in Areas 7 and 7A before October 10. Paragraph 10 (a-b) specifies run sizes below 1.0 million as defined by Canada as critical. For run sizes below the critical threshold, the U.S. catch of Chum salmon in Areas 7 and 7A will be limited to those taken incidentally to other species and in other minor fisheries, and shall not exceed 20,000.

Paragraph 10 (d) says that if Canada provides an estimate of Fraser River run sizes below 900,000, the U.S. will limit its fishery impacts to not exceed catch of 20,000 Chum salmon from the day following notification. U.S. commercial fisheries were initiated as scheduled on October 10.

An estimated Fraser River Chum salmon run size was provided by Canada on October 24, with an estimate of less than 900,000 (a point estimate was not provided), triggering the limit of 20,000 additional Chum salmon to be caught in Areas 7 and 7A beginning October 25.

The U.S. Chum salmon fishery was monitored closely after that point to insure that the 20,000 fish limit was not exceeded. There was an additional run size update communicated from Canada on Monday, October 31 for a Fraser River Chum salmon run size of 972,000. The fishery was therefore continued without restriction through November 14. The U.S. catch between October 25 and 31 in Areas 7 and 7A was 6,491 Chum salmon. The Non-Treaty gill net and purse seine fleets were open daily October 10 and 13 and then continuously October 16 through November 12. The Treaty Indian gill net and purse seine fisheries were opened on October 11 and 12, again on October 14 and 15 and then ran continuously from October 18 through November 12. Catches per vessel and effort were low throughout the fishery.

Non-Indian reef net fisheries targeting adipose-marked Coho salmon were conducted from the end of Fraser Panel control (September 18), until September 30, with Chum salmon retention prohibited. From October 1 through November 12, reefnets were open daily with Chum salmon retention allowed. Chum

salmon catch in this fishery, between October 1 and October 11, was 950 fish. There was no reef net fishing effort after early October, due to unfavorable weather and tidal conditions.

There were 163 Chum salmon reported caught in Areas 7 and 7A during Fraser Panel approved Sockeye and Pink salmon fisheries in August and early September. The total 2011 Chum salmon catch by all gears in Areas 6, 7, and 7A, reported through November 15, was 66,535. Catch distribution, between Areas 7 and 7A, was 55.4% and 44.6% respectively. However, it should be noted that these catch reports may be incomplete as of the date of this report (Table 71).

During the fall Chum salmon fisheries in Areas 6, 7 and 7A, there was a reported by-catch of 7,393 Coho salmon and one Steelhead.

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for Chum salmon returns to Puget Sound were for a fall Chum run totaling approximately 965,000 fish. In-season estimates as of the date of this report indicate that the returns to Puget Sound are mixed with some stocks above and others below forecast. Some Puget Sound Chum fisheries are still underway and additional in-season estimates of abundance may occur. As of the date of this report, spawning escapement surveys are in the early stages for most Puget Sound stocks and therefore escapement estimates are not yet available.

Table 70 Preliminary 2011 Chum Salmon Harvest Report for Washington Catch Reporting Areas 4B, 5, 6C.

Areas 4B, 5, 6C	
Treaty Indian, Gill Net Only	
Time Periods	GN
Through 9/15	28
9/16-10/1	0
10/2-10/8	35
10/9-10/15	114
10/16-10/22	570
10/23-10/29	692
10/30-11/5	45
11/6-11/12	0
Total	1,484

Time Periods	Area 6		Area 7			Area 7A			Area 6, 7, 7A
	GN	PS	GN	RN	Area total	PS	GN	Area total	Total
Through 9/15	0	51	2	0	53	101	9	110	163
9/16-10/1	0	0	0	0	0	0	0	0	0
10/2-10/8	0	0	0	584	584	0	0	0	584
10/9-10/15	0	10,079	542	366	10,987	7,454	1,261	8,715	19,702
10/16-10/22	0	12,200	711	0	12,911	6,072	9,775	15,847	28,758
10/23-10/29	0	6,850	396	0	7,246	0	2,672	2,672	9,918
10/30-11/5	0	3,377	290	0	3,667	2,192	127	2,319	5,986
11/6-11/12	0	1,380	0	0	1,380	0	44	44	1,424
Total	0	33,937	1,941	950	36,828	15,819	13,888	29,707	66,535

Gear Type Abbreviations: GN = Gill net; PS = Purse Seine; RN = Reef net

10/10-11/15 Period By-catch Coho: 7,393; Steelhead: 1

Preliminary Review of 2010 United States Fraser River Sockeye and Pink Salmon Fisheries

Introduction

The 2011 Fraser River Panel fishing season was implemented under a renewed Annex IV of the Pacific Salmon Treaty (PST), and guidelines provided by the Pacific Salmon Commission to the Fraser River Panel. The treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 1). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2011 U.S. Fraser River salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

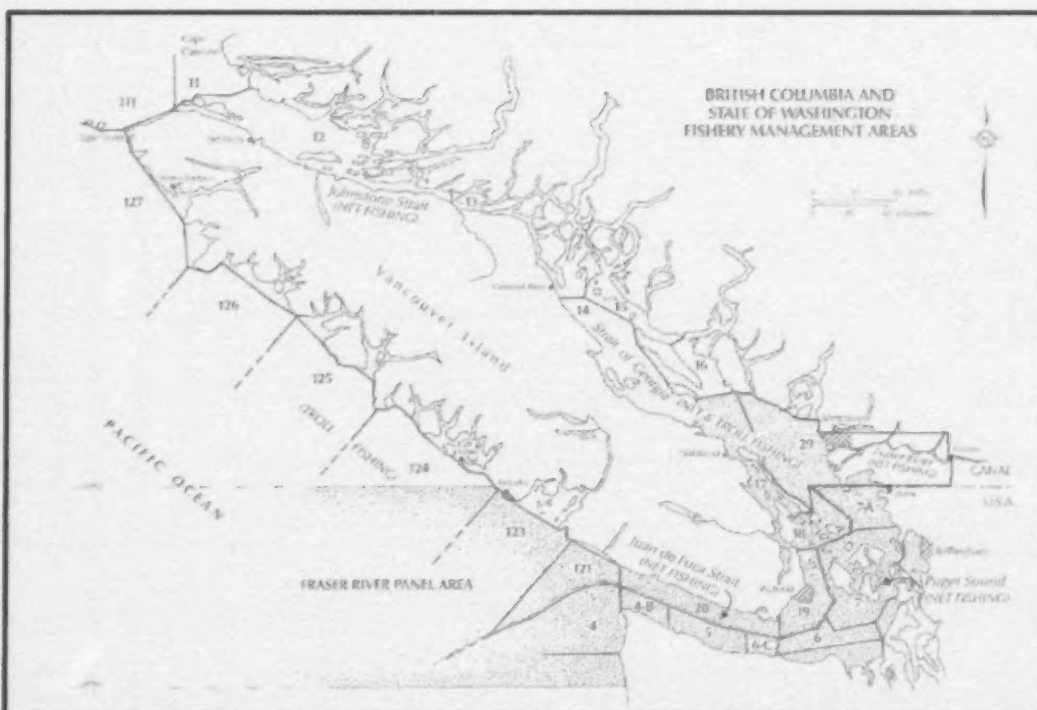


Figure 38 British Columbia and State of Washington Fishery Management Areas, 2011. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

Preseason Expectations and Plans

Forecast and Escapement Goals

Pre-season run size forecasts and escapement goals by stock group (run) at various probability levels were provided to the Panel by the Department of Fisheries and Oceans, Canada (DFO). Table 72 shows the 2011 agreed pre-season sockeye forecasts based on the 50 percent probability level forecasts, which represent the mid-point of the range of possible run sizes for all the stock management groups. Table 72 also provides the escapement goals for the sockeye management groups based on the pre-season

forecasted abundance. The escapement goals for all timing groups can change in-season as the run size estimates change.

Fraser River pink salmon returns were projected pre-season at 17,495,000 fish, with an escapement goal of 6 million fish.

Table 72 2011 Pre-season Fraser River Sockeye Forecasts and Escapement Goals, by Stock Group

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	17,000	453,000	1,500,000	1,207,000	3,177,000
Escapement Goal	17,000	181,200	600,000	482,800	1,281,000

Diversion

Diversion is defined as the percentage of Fraser sockeye or pink salmon migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. Diversion through Johnstone Strait was forecasted pre-season to be 32% for sockeye. Diversion was modeled on a daily basis starting at 0% (100% migration through the Strait of Juan de Fuca) in late June and climbing to 35% in steady increments by early August. The diversion rate was forecasted to be 54% for Fraser pink salmon.

Management Adjustment (MA) and Environmental Conditions

Management Adjustments for sockeye salmon reflect the expected difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. If the adjustments are adopted by the Panel, they are added to the gross escapement goal, effectively increasing the goal for an impacted run. For 2011, Management Adjustments were modeled using forecasts of environmental conditions and return timing or median historical differences between estimates. Table 73 provides the pre-season projected MA's that were used for planning fisheries. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges or, for late runs, upstream migration timing.

Table 73 2011 Pre-Season Management Adjustments

Early Stuart		Early Summer		Summer		Lates	
Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment	Proportional Management Adjustment	Management Adjustment
1.23	21,000	0.21	38,000	0%	0	0.69	333,000

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific area during the time the stock is migrating through that area. Run timing is an important variable when planning fisheries and

predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the stock or run group is forecasted to have passed through Canadian catch Area 20) were predicted pre-season for the major Fraser sockeye run groups and for Fraser pink salmon.

Table 74 2011 Area 20 Pre-Season 50% Run Timing Dates

Run Group	Area 20 50% Run Timing Date
Early Stuart	June 29
Early Summers	July 31
Summers	August 7
Lates	August 11
Pinks	August 25

U.S. Total Allowable Catch (TAC)

Pre-season, the U.S. TAC was established at 180,650 sockeye and 2,951,650 pink salmon. This difference in magnitude between the sockeye and pink salmon allowable catches and the overlap between sockeye and pink salmon run timings presented a management challenge for the U.S. to be able to access the abundant pink salmon while staying within the sockeye allocation.

Pre-Season Management Plans

During the preseason planning process the Fraser Panel evaluates and adopts management approaches for Fraser sockeye and pink salmon that address conservation and harvest objectives for each major stock group. The Fraser River Panel develops fishing plans and in-season decision rules with the objective of meeting management goals. Managing Fraser River sockeye and pink salmon involves a trade-off between catching abundant stocks and meeting escapement objectives for less abundant stock groups.

In 2011 the Panel was faced with a situation where fishing opportunities would be constrained somewhat by Early Summer runs at the beginning of the season and Late Run stocks later in the season, and by the available sockeye harvest to access pink salmon. There was no TAC predicted to be available for Early Stuart sockeye in 2011, and commercial fisheries were not contemplated on this timing group.

The early entry behavior of Late Run sockeye, observed in recent years, which results in an apparent high loss of fish prior to reaching the spawning grounds, was expected to continue in 2011, resulting in a proportional management adjustment of 69%.

Given the abundance of pink salmon expected, and anticipated good prices, the U.S. Section decided to structure its fishery to have an early opening on sockeye but to save some of the sockeye TAC to access pink salmon. The U.S. Section of the Panel developed a pre-season fishing plan that focused sockeye fishing effort on the Early Summer and Summer Runs, but then retained enough sockeye TAC to open pink salmon fishing at the peak of the pink migration to afford an opportunity to harvest most of the pink salmon TAC. For the major U.S. fisheries this meant that sockeye openings would likely be constrained to about a week of fishing during the first week of August. Pink salmon directed fisheries were anticipated to begin the last week of August when pink abundance would be the highest.

In-Season Management

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of diversion, management adjustments, run-timing, abundance, and harvest by stock group. These estimates are created using stock ID information, test fishing data, counts of escapements past Mission, harvest data and environmental information.

Run Assessment

The final in-season abundance estimates for 2011 (Table 75) indicate that all the sockeye stock groups returned in numbers greater than pre-season expectations. The most significant increase from expectations were in the Early Summer and Late run stock groups. The Summer stock group, which was expected to be the largest component of the 2011 sockeye return, came back at slightly more than the forecasted level (104%). The Late run stock group had the greatest increase over expectations, returning at 242% of the preseason forecast. These good returns relative to expectations, especially for the Late runs, ensured good fishing opportunities for both sockeye and pink salmon.

Pink salmon returns were somewhat better than expected, with an in-season estimated run size of 18,300,000 fish, relative to a preseason expectation of 17,495,000 fish (105% of expected). This pink salmon abundance estimate resulted in a significant TAC and U.S. fishing opportunity late in the season.

Run timing was not greatly different than predicted preseason, although all of the runs were between 1 and 3 days later than expected preseason.

Table 75 Comparison of Pre-Season vs. In-Season Abundance Estimates for Fraser River Sockeye Salmon by Stock Group (run).

Stock Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate	Comparison: In-Season vs. (1) Pre-Season Forecast
Early Stuart	17,000	25,000	147%
Early Summer	453,000	571,000	126%
Summer	1,500,000	1,556,000	104%
Late	1,207,000	2,925,000	242%
Total	3,177,000	5,077,000	160%

Table 76 2011 Preliminary 50% Run Timing Dates in Area 20

Run Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	June 29	July 2
Early Summers	July 31	August 2
Summers	August 7	August 10
Lates	August 11	August 12
Pinks	August 25	August 26

Season Description

Prior to July 24:

In-season assessments of abundance indicated a slightly larger run size for the Early Stuart Run and later timing. The Early Stuart run size was updated to 22,000 sockeye. However, this was still far below an abundance that would allow any fishing on this run.

Week ending July 30:

Indications this week were that the runs were returning several days later than expected pre-season and that abundances were tracking well with pre-season expectations. Because of the timing delay the Panel decided to delay the Treaty Indian fishery in areas 4B, 5, and 6C from its projected opening of July 24 until July 26. This fishery was then open for the remainder of the week. The diversion rate appeared to be quite low at this point in the season. Late run Harrison sockeye were showing very strong in the DNA results. The Early Stuart run size was increased to 23,000 sockeye.

Week ending August 6:

The run timings still looked to be about 3 days later than expected for all the runs and abundances similar to forecast or better. The Early Stuart run size was increased from 23,000 to 25,000 sockeye. The Early Summer run size was confirmed at the pre-season forecast of 453,000 sockeye. The diversion rate was now running about 50%. Pink salmon were already showing in good numbers in the test fisheries. Fraser River discharge was running significantly higher than average and, based on the management adjustment models, resulted in the Panel adopting an increase in the proportional management adjustment for Early Summer runs from 0.21 to 0.46. The treaty Indian fishery in areas 4B/5/6C remained open the entire week. Because of the later timing of the runs the fisheries in areas 6/7/7A were delayed several days from the pre-season plan, but did open the latter part of the week. Treaty Indian fisheries in areas 6/7/7A were open on August 4th and August 6th. Non-Indian fisheries in areas 7/7A were open for purse seine and gillnet gear on August 5th and for reef net gear on August 6th.

Week ending August 13:

Run timing still appeared to be a few days late. The sockeye diversion rate had now climbed to 75%. Abundance remained strong for all groups and the Panel approved run size updates for Early Summer runs from 453,000 to 480,000 sockeye, for Summer runs from 1,500,000 to 2,000,000 sockeye and for Late runs from 1,207,000 to 1,475,000 sockeye. The Panel approved a decrease in the management adjustment for Early Summer runs from 0.46 to 0.39. Pink salmon migrating through Panel waters were still dominated by non-Fraser pink stocks. With these run size updates the U.S. still had enough sockeye TAC to mount additional sockeye fisheries and still retain some for pink fishing. Treaty Indian fisheries in areas 4B/5/6C were open the entire week. Treaty Indian fisheries in areas 6/7/7A were open on August 10. Non-Indian fisheries in areas 7/7A were open for purse seine and gillnet gear on August 11, and for reef net gear on August 11 and 13.

Week ending August 20:

The Panel updated the Summer run size estimate from 2,000,000 to 1,600,000 sockeye and the Late run size estimate from 1,475,000 to 1,950,000 sockeye. The diversion rate was running about 78% for sockeye and 55% for pink salmon. The Panel also adopted a lower management adjustment of 0.38 for the Harrison stock within the late stock group. U.S. fisheries this week concluded early in the week and remained closed the latter part of the week, as the planned directed harvest for sockeye had been taken.

The Panel held off on scheduling more fishing directed at pink salmon, for a few days, until the proportion of sockeye to pinks was similar to what was planned preseason. Non-Indian fisheries in areas 7/7A occurred on August 14 for gillnet and reef net gear and on August 15 for purse seine gear. Treaty Indian fisheries in areas 4B/5/6C were open August 14 to August 17, and then re-opened on August 20.

Week ending August 27:

The Late sockeye run size was updated this week to 2,190,000 sockeye. The management adjustment for the Late run group was decreased from 0.69 to 0.46. The diversion rate for sockeye was estimated at 81%, but only 27% for pink salmon. The proportion of sockeye in the U.S. fishing areas was low enough this week and sufficient sockeye TAC remained which allowed the U.S. to begin directed pink salmon fisheries. The treaty Indian fishery in areas 4B/5/6C was open the entire week. Treaty Indian fisheries in areas 6/7/7A were open on August 22, 25 and 26. Non-Indian fisheries in areas 7/7A were open for gill net and purse seine gear on August 24, and for reef net gear on August 24 through August 27. Beginning with the August 27 reef net opening, sockeye release was required in all non-Indian fishery openings for the remainder of the season.

Week ending September 3:

This week the Panel updated the run size for the early summer run from 480,000 to 520,000 sockeye, the Summer runs from 1,600,000 to 1,500,000 sockeye, and the late runs from 2,190,000 to 2,250,000 sockeye. The management adjustment for late runs was again reduced from 0.46 to 0.35. The pink salmon diversion rate was running about 45%. Sockeye numbers in the U.S. fisheries continued to drop resulting in a very high proportion of pink salmon and fisheries were open throughout much of the week. Treaty Indian fisheries in areas 4B/5/6C were open the entire week. Treaty Indian fisheries in areas 6/7/7A were open August 30 and September 2 and 3. Non-Indian fisheries in areas 7/7A were open for reef nets the entire week, and for gill net and purse seine gear on August 31. Beginning with the September 2 Treaty Indian opening, the U.S. implemented the Iverson dock line closure for all fishery openings to avoid any unexpectedly large sockeye catch in the Apex portion of area 7A.

Week ending September 10:

The Panel reduced the pink salmon run size from 17,495,000 to 16,000,000 fish. The panel increased the Early Summer sockeye run size from 520,000 to 570,000, the Summer run size from 1,500,000 to 1,550,000, and the Late run size from 2,250,000 to 2,325,000 fish. Pink fishing continued in U.S. waters through the early part of the week but it appeared that the U.S. was close to taking its allocation of sockeye so regulations included the Iverson Dock line closure and non-retention of sockeye in non-Indian fisheries. Fisheries were closed late in the week as it appeared the U.S. had also taken its pink allocation. Treaty Indian fisheries in areas 4B/5/6C were open September 4 through 8. Treaty Indian fisheries in areas 6/7/7A were open September 5, 7 and 8. Non-Indian reef net fisheries were open September 4 through 8, and gill net and purse seine fisheries were open September 4 and 6.

Week ending September 17:

The Panel increased the Early Summer run size from 570,000 to 590,000 sockeye, and the Late run size from 2,325,000 to 2,425,000 sockeye. The pink salmon run size was increased from 16,000,000 to 17,500,000 fish. Sockeye and pink salmon abundance was waning in U.S. waters, but these run size adjustments left enough TAC available for one more day of treaty Indian fishing this week. Treaty Indian fishing in areas 4B/5/6C/7/7A was open on September 13.

Harvest

Between July 26 and September 13 the United States caught a total of 278,520 Fraser River sockeye and 2,908,420 Fraser River pink salmon in Panel area waters (Tables 77 and 78)³. During this time period the Treaty Indian fisheries in Areas 4B/5/6C were open for a total of 42 days, and in Areas 6/7/7A for 14 days. The Non-Indian fishery in Areas 7/7A was open for 20 days for reef nets and 7 days for gillnet and purse seine gear. The Non-Indian fishery caught 84,900 Fraser sockeye salmon and 1,501,650 Fraser pink salmon. The Treaty Indian fishery caught 193,620 Fraser sockeye salmon and 1,406,770 Fraser pink salmon.

Table 77 Preliminary Estimates of 2011 U.S. Catches of Fraser River Sockeye Salmon in Panel Area Waters

	Treaty Indian	Non-Indian
Ceremonial and Subsistence (all areas)	12,560	0
Commercial Catch in Areas 4B/5/6C	20,980	0
Commercial Catch in Areas 6/7/7A	160,080	84,900
Total Catch	193,620	84,900
% of U.S. Catch	69.5%	30.5%

Table 78 Preliminary Estimates of 2011 U.S. Catches of Fraser River Pink Salmon in Panel Area Waters

	Treaty Indian	Non-Indian
Recreational	0	1,200
Ceremonial and Subsistence (all areas)	13,800	0
Commercial Catch in Areas 4B/5/6C	9,490	0
Commercial Catch in Areas 6/7/7A	1,383,480	1,500,450
Total Catch	1,406,770	1,501,650
% of U.S. Catch	48.4%	51.6%

³ Catch data reported by PSC staff as of 10/7/11.

D. UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operation of and plans for existing enhancement projects, plans for new projects, and views concerning the other country's enhancement projects. In 1988, a committee was formed to develop recommendations for the pre- and post-season and enhancement report formats. In summary, the committee proposed that:

- detailed reports on existing enhancement facilities of the type produced in 1987 be prepared every four years;
- the Parties will annually update information on eggs taken, fry or smolt released and adults back to the facility; significant changes in facility mission or production will be highlighted in narratives; and
- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. **2004 ANNUAL REPORT ON THE SALMON ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

2. **2005 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

3. **2006 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

4. **2007 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

5. **2008 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

6. **2009 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

7. **2010 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES**

This report had not been received by March 31, 2011.

8. 2011 ANNUAL REPORT OF THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2012.

9. 2006 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

10. 2007 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

11. 2008 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

12. 2009 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

13. 2010 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2011.

14. 2011 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2012.

Reports of the Joint Technical Committees

PART V

REPORTS OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 2011 to March 31, 2012 are presented in this section. Copies of the complete reports are available from the library of the Pacific Salmon Commission.

A. JOINT CHINOOK TECHNICAL COMMITTEE

ANNUAL REPORT OF THE EXPLOITATION RATE ANALYSIS AND MODEL CALIBRATION. TCCHINOOK (11)-3 – April 2011.

This report contains the principal results of the annual exploitation rate assessment of CWT data through 2009 and the final preseason Chinook model calibration for 2010 (CLB 1007). Results include the Abundance Indices (AIs) for the aggregate abundance based management (AABM) fisheries and individual stock based management (ISBM) indices for each party (country).

AABM Abundance Indices and Associated Catches

The pre- and postseason AIs for the three AABM fisheries, Southeast Alaska All Gear (SEAK), Northern British Columbia Troll and Queen Charlotte Islands Sport (NBC), and West Coast Vancouver Island Troll and Outside Sport (WCVI) are presented in Table 1. The Agreement specifies that the AABM fisheries are to be managed through the use of the AIs. Each calibration provides the first postseason AIs for the previous year and the preseason AIs for the current year. Preseason AIs are used to set total allowable catch limits in the upcoming fishing season. Subsequently, postseason AIs (from the following year's calibration) are used to track catch overage and underage provisions. The first 2009 postseason AIs and the 2010 preseason AIs have now been finalized.

Table 1. Abundance Indices for 1999 to 2010 for the SEAK, NBC, and WCVI AABM fisheries.

Year	SEAK		NBC		WCVI	
	Preseason	Postseason	Preseason	Postseason	Preseason	Postseason
1999	1.15	1.12	1.12	0.97	0.60	0.50
2000	1.14	1.10	1.00	0.95	0.54	0.47
2001	1.14	1.29	1.02	1.22	0.66	0.68
2002	1.74	1.82	1.45	1.63	0.95	0.92
2003	1.79	2.17	1.48	1.90	0.85	1.10
2004	1.88	2.06	1.67	1.83	0.90	0.98
2005	2.05	1.90	1.69	1.65	0.88	0.84
2006	1.69	1.73	1.53	1.50	0.75	0.68
2007	1.60	1.34	1.35	1.10	0.67	0.57
2008	1.07	1.01	0.96	0.93	0.76	0.64
2009	1.33	1.20	1.10	1.07	0.72	0.61
2010	1.35		1.17		0.96	

In general, the AIs for 1999 through 2001 are low compared to AIs in the late 1980s and early 1990s but values increased substantially starting in 2002. The 2010 projected AI values have declined when compared to the high values for 2003 through 2006 in SEAK and NBC. In 2007, a decline in abundances was detected. The Agreement specifies an allowable catch for each AI for each fishery. The maximum

allowable Treaty catch (total catch minus any hatchery add-on and exclusion catch) by fishery and year and the actual (observed) catches are shown in Table 2.

Table 2. Preseason allowable catches for 1999 to 2010, and postseason allowable catches and observed catches for 1999 to 2009, for AABM fisheries.

PST Treaty Allowable and Observed Catches									
Year	SEAK (T, N, S) ¹			NBC (T, S)			WCVI (T, S)		
	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch
1999	192,800	184,200	198,842	145,600	126,100	86,726	128,300	107,000	36,413
2000	189,900	178,500	186,493	130,000	123,500	31,900	115,500	86,200	101,438
2001	189,900	250,300	186,919	132,600	158,900	43,500	141,200	145,500	117,670
2002	356,500	371,900	357,133	192,700	237,800	150,137	203,200	196,800	165,036
2003	366,100	439,600	379,519	197,100	277,200	191,657	181,800	268,900	175,821
2004	383,500	418,300	417,019 421,666 ²	243,600	267,000	241,508	192,500	209,600	216,624
2005	416,400	387,400	387,749	246,600	240,700	243,606	188,200	179,700	202,662
2006	346,800	354,500	358,601	223,200	200,000	215,985	160,400	145,500	146,883
2007	329,400	259,200	328,419	178,000	143,000	144,235	143,300	121,900	139,150
2008	170,000	152,800	172,322	124,800	120,900	95,647	162,600	136,900	145,726
2009	218,800	176,000	214,451	143,800	139,100	109,470	107,800	91,300	124,617
2010	221,800			152,100			143,700		

¹ Nomenclature is T for troll, N for net, and S for sport.

² The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

Table 3 shows the differences between the postseason allowable catches and the observed catches in AABM fisheries for 1999–2009, and the cumulative differential for those years. All three AABM fisheries have cumulative underages. In SEAK, observed catches have been below final allowable catches for three of the eleven years; the cumulative differential is 0.5% or -0.6%. In NBC, observed catches have been below the final allowable catches in eight of the eleven years; the cumulative differential is -23.6%. In WCVI, observed catches have been below allowable catches in four of the eleven years; the cumulative differential is -6.9%.

Table 3. Deviations in numbers of Chinook salmon and percentages from catch targets derived from the first postseason AI (Table 2) for Pacific Salmon Treaty AABM fisheries in 1999 to 2009.

Year	SEAK		NBC		WCVI	
	Number of Fish	Percent Difference	Number of Fish	Percent Difference	Number of Fish	Percent Difference
1999	+14,642	+7.9%	-39,374	-31.2%	-70,587	-66.0%
2000	+7,993	+4.5%	-91,600	-74.2%	+15,238	+17.7%
2001	-63,381	-25.3%	-115,400	-72.6%	-27,830	-19.1%
2002	-14,767	-4.0%	-87,663	-36.9%	-31,764	-16.1%
2003	-60,081	-13.7%	-85,543	-30.9%	-93,079	-34.6%
2004	-1,281 ¹	-0.3%	-25,492	-9.5%	+7,024	+3.4%
	+3,366	+0.8%				
2005	+349	+0.1%	+2,906	+1.2%	+22,962	+12.8%
2006	+4,101	+1.2%	+15,985	+8.0%	+1,383	+1.0%
2007	+69,219	+26.7%	+1,235	+0.9%	+17,250	+14.2%
2008	+19,522	+12.8%	-25,253	-20.9%	+8,826	+6.4%
2009	+38,451	+21.8%	-29,630	-21.3%	+33,317	+36.5%
Cum.	+14,666	+0.5%	-479,829	-23.6%	-117,260	-6.9%
	+19,314	0.6%				

¹ The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

ISBM Indices

For ISBM fisheries, the Agreement specified that Canada and the United States would reduce base period exploitation rates on specified stocks by 36.5% and 40%, equivalent to ISBM indices of 63.5% and 60%, respectively. This requirement is contained in Chapter 3 section 8(c) of the treaty and is referred to as the 'general obligation' and does not apply to stock groups that achieve their CTC agreed escapement goals. Estimated ISBM fishery indices are shown in Table 4 for Canadian fisheries and Table 5 for United States (U.S.) fisheries. Both tables present CWT-based indices for 2008, and Chinook model-based indices for 2010. The agreement specifies that the ISBM indices be forecasted preseason and evaluated postseason for each escapement indicator stock listed in Attachments I to V of the Chinook Chapter.

CWT-based Indices in 2008

Canadian ISBM indices from the CWT-based estimates for 2008 were reduced more than required under the agreement for four of the five CWT indices which could be calculated, the exception being WCVI Falls (Table 4).

Five of the 15 U.S. ISBM indices for the CWT-based estimates for 2008 were reduced more than required. The other 10 U.S. CWT-based ISBM indices exceeded 0.60. Four of these stocks (Upriver Brights, Quillayute, Hoh, and Mid-Columbia Summers) met or exceeded their respective escapement goals, and thus are exempted from the general obligation (Table 5).

Predicted ISBM Indices for 2010

Six of the 18 ISBM indices for Canada, based on outputs from calibration 1007, are predicted to exceed the allowable value of 0.635 for Canadian ISBM fisheries in 2010 (Table 4). Five of these six stocks are Puget Sound Natural Summer/Fall stocks, and do not have CTC-accepted escapement goals. One of the six stocks, the Lewis River, has a CTC escapement goal, but was below goal in 2009.

Eight of the 23 U.S. ISBM indices based on calibration 1007 are predicted to be above the allowable limit of 0.60 for U.S. ISBM fisheries in 2010 (Table 5). All have CTC agreed escapement goals: Hoh, Quillayute, Upriver Brights, Deschutes, Mid-Columbia Summers, Nehalem, Siletz, and Siuslaw. Of the stocks with goals, four were at or above goal in 2009, two were slightly under goal (Mid. Col. Summer, and Hoh) and two (the Oregon stocks) were below goal in 2009.

Table 4. Canadian 2008 ISBM indices based on CWT and the 2010 indices predicted from the PSC Chinook Model.

Stock Group	Escapement Indicator Stock	Canadian ISBM Indices	
		CWT Indices for 2008	Model Indices for 2010
Lower Strait of Georgia ³	Cowichan	0.242 ⁴	0.203 ⁶
	Nanaimo	NA ^{1,5}	
Fraser Late ³	Harrison River ²	0.031 ⁷	0.138
North Puget Sound Natural Springs ³	Nooksack	NA	0.568
	Skagit	NA	0.568
Upper Strait of Georgia ³	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	0.073	0.122
Fraser Early (spring and summers) ³	Upper Fraser, Mid Fraser, Thompson	NA	0.121
West Coast Vancouver Island Falls ³	WCVI (Artlish, Burman, Kaouk, Tahsis, Tashish, Marble)	0.652 ⁸	0.122
Puget Sound Natural Summer / Falls ³	Skagit	NA	0.709
	Stillaguamish	NA	0.791
	Snohomish	NA	0.718
	Lake Washington	NA	0.690 ⁹
	Green River	0.106	0.670 ⁹
North / Central B. C. ³	Yakoun, Nass, Skeena, Area 8	NA	0.177
Washington Coastal Fall Naturals ³	Hoko, Grays Harbor, Queets ² , Hoh ² , Quillayute ²	NA	0.134
Columbia River Falls	Upriver Brights ²	NA	0.110
	Deschutes ²	NA	0.110
	Lewis ²	NA	0.920
Columbia R Summers	Mid-Columbia Summers ²	NA	0.084
Far North Migrating OR Coastal Falls	Nehalem ² , Siletz ² , Siuslaw ²	NA	NA

¹ Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

² Stock or stock group with a CTC agreed escapement goal.

³ Stock groups listed in Annex 4, Chapter 3, Attachment IV.

⁴ An inconsistency was discovered between the approaches used to calculate the model-based and CWT-based indices. The former included harvest rates for terminal sport while the latter did not. Terminal sport harvest rates are now included in the calculation of both indices. Further review is yet required to determine whether the base

period terminal sport harvest rates obtained from analyses of Big Qualicum CWT recoveries adequately represent impacts that would have occurred on Cowichan Chinook.

⁵ Several problems have been identified in the approach previously used to calculate the CWT-based indices for Nanaimo Chinook. Until these problems are resolved, indices for this stock will not be reported.

⁶ Although model-based indices were previously calculated separately for Cowichan and Nanaimo, these did not adequately represent impacts on either LGS stock because the model-based data represent an aggregate of the two stocks and methods do not currently exist to correctly disaggregate these data for calculation of the ISBM values. Until such methods are developed, a single index value only will be reported representing the aggregate.

⁷ The terminal sport harvest rates for Chilliwack Hatchery Chinook, the indicator stock, were removed from the calculation for the Harrison River naturals because sport harvest has been essentially zero on the natural population.

⁸ ISBM indices for WCVI naturals are based on information from Robertson Cr. hatchery stock, including terminal harvest rates. Prior to this report, harvest rates for terminal net and sport fisheries were treated as equal between the naturals and the hatchery indicator. However, this ignored the fact that since 1999, there has been no terminal net harvest of the vast majority of natural stocks on WCVI. Consequently, indices for WCVI naturals were adjusted to reflect this zero terminal net harvest rate. In addition, some inconsistencies were noted in the treatment of terminal harvest rates between the model and CWT indices for this stock group. These inconsistencies were eliminated.

⁹ For Canadian ISBM fisheries, the same distribution and Index value are used for Lake Washington and Green R.

Table 5. U.S. 2008 ISBM indices based on CWT and the 2010 indices predicted from the PSC Chinook Model.

Stock Group	Escapement Indicator Stock	U.S. ISBM Indices	
		CWT Indices for 2008	Model Indices for 2010
Washington Coastal Fall Naturals ³	Hoko	NA ¹	0.130
	Grays Harbor	0.390	0.382
	Queets ⁴	0.610	0.285
	Hoh ²	0.950	0.987
	Quillayute ²	1.160	0.963
Columbia River Falls ³	Upriver Brights ²	1.830	0.801
	Deschutes ²	0.540	1.004
	Lewis ²	0.630	0.505
Puget Sound Natural Summer / Falls ³	Skagit	NA	0.261
	Stillaguamish	NA	0.117
	Snohomish	NA	0.125
	Lake Washington	NA	0.517
	Green R	0.280	0.520
Fraser Late ³	Harrison River ²	0.260	0.209
Columbia R Summers ³	Mid-Columbia Summers ²	6.800	1.142
Far North Migrating OR Coastal Falls ³	Nehalem ²	0.920	0.916 ⁵
	Siletz ²	0.670	0.698 ⁵
	Siuslaw ²	0.640	2.028 ⁵
North Puget Sound Natural Springs ³	Nooksack	0.210	0.181
	Skagit	NA	0.245
Lower Strait of Georgia	Cowichan,	4.040	0.216
	Nanaimo	NA	NA
Upper Strait of Georgia	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	NA	NC ⁴
Fraser Early (spring and summers)	Upper Fraser, Mid Fraser, Thompson	NA	0.111
West Coast Vancouver Island Falls	WCVI (Artlish, Burman, Kaouk, Tahsis, Tashish, Marble)	NA	0.213
North / Central B. C.	Yakoun, Nass, Skeena, Area 8	NA	NC ⁴

¹ Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

² Stock with a CTC agreed escapement goal.

³ Stock groups listed in Annex 4, Chapter 3, Attachment V.

⁴ NC means that the current model assumes the stock is not caught in U.S. ISBM fisheries.

⁵ Oregon coast stocks are based on a three year average harvest rate in in-river fisheries and are thus high. In addition Base Period harvest rates were low in terminal area fisheries.

METHODOLOGIES TO MONITOR THE PERFORMANCE OF INDIVIDUAL STOCK-BASED MANAGEMENT FISHERIES

TCCHINOOK (11)-4 – December 2011.

The 2008 Pacific Salmon Treaty (PST) describes an Individual Stock Based Management (ISBM) fishery regime that is abundance-based and constrains to a numerical limit the total catch or the total adult equivalent mortality rate for specific stocks within a jurisdiction's fisheries. ISBM management regimes apply to all Chinook salmon fisheries subject to the PST that are not AABM fisheries or terminal exclusion fisheries. Several fisheries within British Columbia (BC) are under ISBM fishery management and all PST fisheries south of the border between BC and Washington State are under ISBM fishery management.

This report focuses on three assignments to the Chinook Technical Committee (CTC) listed in Appendix A to Annex IV, Chapter 3, of the 2008 Agreement:

(7) Individual Stock Based Management Improvements

a) Individual Stock Based Metric Improvement: The CTC will explore alternative metrics to be used to monitor ISBM fishery impacts, and report to the Commission on the utility of these metrics or approaches by 2011. The non-ceiling index referenced in paragraph 8(d) has not proven to be useful for many stocks as a means to monitor or evaluate the performance of ISBM fisheries relative to the obligations.

b) Paragraph 13 Obligations for ISBM fisheries: The CTC will develop methods to estimate the savings of mature fish expected to result from further reductions to AABM fisheries under paragraph 13 and determine adjustments in ISBM fisheries required to ensure that such savings accrue to escapements.

c) Evaluate 1991 to 1996 ISBM Average Criteria: The CTC will provide estimates of the 1991 to 1996 average impacts in ISBM fisheries relative to the 1979 to 1982 base period for the stock groups listed in Attachments IV and V.

In addition to these assignments, this report reviews the ISBM component of the stock performance evaluation defined in Paragraph 13 of Chapter 3 of the 2008 Agreement. The inclusion of this material was considered appropriate as part of the additional criteria used to monitor performance of ISBM fisheries.

The report is organized into five primary sections:

- Section 1 provides the introduction and background for the ISBM assignments, describes the limitations of the current ISBM indices, and introduces the desirable attributes for an ideal ISBM metric.
- Section 2 addresses assignment 7(a) of Appendix A in the Agreement by introducing seven alternative ISBM metrics grouped into five categories. This section also provides examples of the application of alternative metrics for select PST Chinook salmon stocks, and includes an evaluation of these alternative metrics and the current indices across the list of desirable attributes.
- Section 3 addresses assignment 7(b) of Appendix A in the Agreement by developing methods to quantify the number of mature fish saved for each stock in Attachments IV and V of Chapter 3 of the Agreement after reducing SEAK and NBC AABM catches by 10%, and determining reductions required to ISBM fisheries to "pass-through" the savings into escapement.
- Section 4 addresses assignment 7(c) of Appendix A in the Agreement by computing the average post-season ISBM index for years 1991 to 1996 (using the current metric) and comparing it with

index values corresponding to the general obligation specified in Paragraph 8(c) of the Agreement: 63.5% and 60% of the exploitation rate that occurred during the base period (1979-1982) for Canada and the U.S., respectively. This section also includes an evaluation of the ISBM component of stock performance specified in Paragraph 13 of the Agreement, and describes a methodology to evaluate these provisions.

- Section 5 provides a summary and conclusions.

Section 1. Four limitations have been identified with the current method calculating the non-ceiling index (i.e., pre-season ISBM index) used for fishery planning and the post-season assessment of compliance relative to ISBM obligations:

1. *Instability:* The computed values for ISBM indices change (i.e., are not stable) for several years until all age classes from contributing broods have matured and died. Assumed age-specific maturation rates (e.g., values averaged over some historical period) must be used to estimate cohort sizes and incidental mortalities for brood years that are incomplete. The adult equivalent (AEQ) values used in the calculation of ISBM indices are also subject to change because they depend on maturation rates. This instability can lead to incorrect interpretation of compliance with ISBM obligations and poses challenges for pre-season planning and for post-season assessment performance evaluations.

2. *Partial base period coverage:* The indices are unreliable for any stock where the average stock, age, and fishery-specific exploitation rates for the base years 1979-1982 were estimated using incomplete or poor data. CWT-based indices require CWTs in base period fisheries from one or more broods, reliably estimated CWTs for all fisheries (not just ISBM fisheries), and reliably estimated CWTs for the spawning escapement. This means that programs for estimating fishery catches and spawning escapements, as well as programs for sampling CWTs from fishery catches and spawning escapements, had to be fully operational during those years. This was often not the case. For some data deficient stocks, data from surrogate stocks are used to represent the base period exploitation rates, assuming both stocks have the same fishery distribution and maturation patterns.

3. *Delayed data availability:* The data needed to calculate the post-season ISBM CWT-based index for several stocks caught in U.S. ISBM fisheries are not available at the time the index must be computed for timely use. Catch estimates from some U.S. ISBM fisheries may not be available until at least one year after a fishery has occurred, either because the catch data are unavailable or because multiple agencies have not reached timely agreement on the 'final' catch estimates needed to generate expansion factors for CWT recoveries. Because these recoveries are needed to estimate cohort sizes, the consequence of these delays in the availability of CWT data from some U.S. fisheries is that the ISBM indices for both countries may not be computed within a timeframe for ISBM evaluations and to inform fishing plans for the upcoming season.

4. *Different pre-season and post-season modeling methods:* Pre-season fishery planning is made more uncertain because numerous differences exist between the pre-season and post-season versions of the index. Fundamental differences may exist in the sources of data used in the calculations and the assumptions necessary to compute ISBM indices. This means that the two different versions of the index often do not correspond well. It is preferable for the pre-season and post-season indices to be calculated using the same approach and data.

Section 2. Seven alternative ISBM metrics, grouped into five categories defined by the following analytical approaches, were explored: (1) generalized linear models based on tag contributions and catch projections; (2) an effort-based catch-at-age model; (3) mortality distribution across fisheries as generated by cohort analysis of CWT data; (4) a composite-index approach based on exploitation rate analysis of

CWT data; and, (5) methods using the Pacific Fisheries Management Council's (PFMC) Chinook Fishery Regulation Assessment Model (FRAM).

No single alternative metric corrected all the limitations of the current indices or exhibited all the identified desirable attributes. The analytical approaches were not evaluated in terms of their ability to calculate ISBM indices for adipose mark selective, mixed bag, or other atypical fishery regulations. Methods that allow for the computation of pre-season and post-season indices under a common analytical framework are highly desirable (currently, pre-season indices are produced by the PSC Chinook Model while post-season indices are based on the analysis of CWT data, thus producing indices that often track each other poorly). Methods 1a, 1b, 2, and 5a have this attribute but only methods 1a and 1b can be currently applied coastwide. In terms of parsimony and simple usage, the mortality distribution ISBM indices (Method 3) may do an adequate job of evaluating whether some ISBM obligations were met and has the ability to fill base period data gaps. Under data-rich situations, as in the case of some stocks (Columbia Upriver Brights: URB), a more comprehensive assessment could be conducted using Method 2. Method 2 requires projections of cohort survival and effort data that are available only for a few U.S. stocks in U.S. ISBM fisheries. Finally, method 4 could remove information gaps in ISBM evaluations given our existing data and coverage but it would require a restructuring of the Attachment tables in the Agreement to have regional based composites for different areas.

The CTC recommends Methods 1a and 1b as approaches deserving further investigation towards their usage in ISBM performance evaluations. Future investigations should be based on the application of these methods to other stocks listed in attachments IV and V and on assessment of their accuracy through computer simulations. Although Method 1a has the advantage of using the current algorithm, thus facilitating a transition to a new metric, it still suffers from instability of post-season computations under incomplete broods. In contrast, Method 1b does not suffer from this limitation but it uses an alternative algorithm for post-season computations. *From the point of view of simplicity, Method 3 could be applied after a clear representation of terminal fisheries to facilitate the computation of post-season estimates for stocks currently not evaluated due to lack of base period data.* New analytical effort would have to be invested by CTC members in order to fully implement the use of a new approach for the computation of pre- and post-season ISBM indices.

The CTC recommends several improvements to the reporting of CWT data for U.S. ISBM fisheries to improve the utility of the current metric and alternative metrics using CWT data. Some of the delayed data availability issues with the current metric can be addressed by the CTC and southern U.S. agencies reporting CWT data. In the 1985 Memorandum of Understanding, Canada and the United States agreed to "develop the capability to use current season coded-wire tag data, fishing data, spawning escapement data, and age composition data for the pre-season management process for the next season". Currently, CWT data are available from Alaska, BC, Columbia River, Oregon and outside fisheries in Washington in time for the pre-season management process for the next season. However, estimated CWT recoveries are typically not available in time for other inside fisheries in Washington. The delay in reporting the U.S. ISBM fishery CWT data delays the reporting ISBM indices for U.S. ISBM stocks, and several Canadian ISBM stocks.

Several approaches have been identified to improve timeliness of the ISBM indices, including: (1) report the ISBM Indices for Canadian stocks that are far north migrating and rarely have any CWTs recovered in U.S. ISBM fisheries (e.g. ISBM stocks using data from Kitsumkalum, Atnarko, and Quinsam CWT stocks); (2) southern U.S. agencies review, identify, and reconcile impediments to late CWT reporting to the extent feasible; (3) for U.S. ISBM fisheries where pre-terminal fishery CWT samples have been decoded, but cannot be expanded due to delays in catch data, agencies can report observed CWT recoveries without estimated numbers via the data exchange procedures. Reporting of observed CWT recoveries that have not been estimated enables the CTC to use alternative methods to estimate ISBM

indices. Complete indices can be reported in time for the pre-season management process for the next season; and, (4) where incomplete or unreported CWT data exist for U.S. ISBM fisheries, the CTC should develop and apply estimation models to impute the missing data and calculate the U.S. ISBM fishery indices to use in the pre-season management process for the next season. These approaches are consistent with the way the CTC currently makes use of the best available data or imputes missing data in order to prepare critical pre-season fishery management information, such as the AABM Abundance Indices for the next season.

Section 3. Based on two modeled scenarios, *the savings of mature fish resulting from 10% reductions in SEAK and NBC AABM fisheries and accruing to terminal run varied among stocks. Proportional increases in escapement were less than 4% in all stocks, except for Upper Georgia Strait (6.4%-8.2%) and North/Central BC (4%-4.8%).* The magnitude of the savings for a specific stock is influenced by its cohort size and exploitation in the AABM fisheries. All savings from catch reductions in AABM fisheries do not accrue into terminal run and escapement the same year because some of the saved fish are immature. *The absolute reductions required to ISBM harvest rates were less than or equal to 1%, with the exception of Columbia River Summers in 2007 with 1.7% (2.4% relative reduction).* In terms of relative changes, Oregon Coast in 2007 required the largest reductions to ISBM harvest rates (3.7%), followed by WCVI Naturals in 2008 (3.5%). This means that all the savings could be passed into escapement with relatively little reduction in ISBM harvest. ISBM harvest rate reductions would be necessary in several consecutive years (e.g., 3 years) to pass through all savings from a reduction in AABM catch. These scenarios are suitable to evaluate impacts on the stock groups included in the PSC Chinook Model. In most instances these stock groups include mixtures of hatchery and wild stocks; consequently, the estimates reported may not necessarily represent savings for individual natural stocks. The scenarios were retrospective analyses using observed data. The capacity to project impacts as a result of reductions to AABM and ISBM catch is affected by limitations of the current Model (e.g. one time step, inadequate representation of natural stocks), uncertainties regarding where and when these reductions would occur, and the short timeframe available for timely assessments that could influence management decisions.

Section 4. *The CTC concludes the additional obligation, using the 1991-1996 average exploitation rate, is more restrictive for Canadian ISBM fisheries than for U.S. ISBM fisheries.* The general obligation is lower than the 1991-1996 average for most U.S. ISBM stocks, whereas the 1991-1996 average is lower than the general obligation for most Canadian ISBM stocks. Given that the lesser of these obligations applies when stocks do not meet their escapement goal, the additional obligation would apply for the Canadian ISBM stocks that were evaluated (several could not be evaluated), except for Upper Strait of Georgia, and for the Deschutes and Lewis River Wild in the Columbia for the U.S. ISBM stocks. Many of the U.S. ISBM stocks exceeded their escapement goals during 1991-1996, which corresponds to current conditions when ISEM restrictions would not apply. However, ISBM adult equivalent mortality rates were greater in years when the escapement goals were not met for the Hoh, Quillayute, and Siuslaw.

Also in Section 4, the conditions described in Paragraphs 13(d) and 13(e) are new components of the 2008 Agreement, relative to the 1999 Agreement, that are additional criteria for management of ISBM fisheries. These components evaluate the effect of ISBM fisheries on observed spawning escapements and determine if the stock would have exceeded the escapement threshold of 85% of a CTC-accepted escapement goal under the ISBM obligations. Paragraph 13(d) describes a situation when a stock can be identified as meeting the criteria to trigger additional management action under Paragraph 13, even if escapement exceeded the threshold, whereas Paragraph 13(e) describes a situation when a stock can be excluded from triggering additional management action under Paragraph 13, even if escapement is less than the threshold. *The CTC demonstrated that Paragraph 13(d) and 13(e) can be quantitatively evaluated using a common method since both require estimation of the spawning escapement that*

would have occurred if a jurisdiction's ISBM fishery impact was the same as the obligation level. This method is illustrated with applications to the Harrison River in 2009 and the Nehalem River in 2008.

ANNUAL REPORT OF CATCHES AND ESCAPEMENTS. TCCHINOOK (12)-1 – January 2012

The June 30, 1999 Pacific Salmon Treaty (PST) Annex and the Related Agreement (Agreement) substantially changed the objectives and structure of the Pacific Salmon Commission's (PSC) Chinook salmon fisheries and assessment of Chinook salmon stocks. The 1999 Agreement replaced the previous ceiling and pass-through fisheries with Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM) fisheries. The 2008 Agreement updated and refined several aspects of the 1999 Agreement while continuing with the approach of abundance based management of PSC Chinook fisheries.

This report summarizes the 2010 fishery catches by region, provides available estimates of incidental mortality (IM) by fishery and provides limited commentary on fishery catches where needed. Landed catch is reported in the appendices for each geographic area covered under the PST. An assessment of escapement for stocks with Chinook Technical Committee (CTC) accepted goals is included, and escapement data through 2010 are provided for all escapement indicator stocks.

The escapements of 50 naturally spawning escapement indicator stocks are reviewed annually, along with the results from the Sentinel Stocks Program (SSP). Biologically-based escapement goals have been accepted by the CTC for 25 of the 50 escapement indicator stocks/stock aggregates. For 12 of these, the escapement goal is defined as a range; for the remaining 13, the escapement goal is the point estimate of SMSY (escapement producing maximum sustained yield). In 2010, the percentage of stocks meeting goal or goal ranges was 80%, the highest percentage observed since 2005, indicating an improvement in stock status over the past few years. Of the five stocks below goal, one stock (Hoh Spring/Summer) was within 15% of the target goal. Four stocks were more than 15% below goal: Situk, Cowichan, Queets Spring/Summer, and Nehalem. Data for stocks without accepted goals are presented to illustrate trends in escapement. The CTC will continue to review escapement goals, as they are provided to the committee.

The CTC retrospectively evaluated the performance of the stock groups and the criteria for initiating additional management action in regards to Paragraph 13c, based upon observed escapements and exploitation rates through 2010 and stock forecasts for 2011. No stock groups listed in Attachment I-III met the criteria for triggering additional management action. However, only five of the 10 different stock groups in Attachments I-III have stocks with agreed management objectives that can be evaluated for triggering additional management action, and only six of these stocks had forecasts available for 2011. The CTC has identified a need to develop management objectives and forecast capabilities for more of the stocks included in Attachments I-III to improve the efficacy of Paragraph 13.

B. JOINT CHUM TECHNICAL COMMITTEE

2009 POST SEASON SUMMARY REPORT TCCHUM (11)-1 – June 2011.

This Pacific Salmon Commission (PSC) Joint Chum Technical Committee report presents the information on Chum salmon stocks and fisheries in southern British Columbia and Washington for the year 2009 to address the specific provisions and requirements of Chapter 6, Annex IV of the Pacific Salmon Treaty

(PST) (Appendix 1). This was the first year of implementation for the version of Annex IV that was adopted January 2009.

The treaty between the governments of Canada and the United States of America (U.S.) concerning Pacific salmon was designed to facilitate co-operation between the two countries in the management, research and enhancement of Pacific salmon stocks. Chapter 6 of Annex IV (Chum Annex) of the PST required that certain fisheries for Chum salmon in southern British Columbia (B.C.) and Washington be managed in a specified manner. In each country other fisheries, while not specifically mentioned in the PST, are known to harvest Chum salmon originating in the other country. This report presents various aspects of the Chum salmon found in Washington State and in B.C. waters between Vancouver Island and the mainland and off the west coast of Vancouver Island, and discusses the management actions of Canada and the U.S. in relation to the PST requirements.

C. JOINT COHO TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

U.S./CANADA NORTHERN BOUNDARY AREA 2011 SALMON FISHERIES MANAGEMENT REPORT AND 2012 PRELIMINARY EXPECTATIONS TCNB (12)-1 – January 2012.

This report reviews:

catch, effort, and management actions in the 2011 Northern Boundary Area troll and net fisheries of southern Southeast Alaska Districts 101 to 108 and northern British Columbia Areas 1, 3, 4, and 5;

management performance relative to Treaty requirements for pink salmon;

preliminary expectations and fishing plans for 2012.

2011 Fisheries

The southern Southeast Alaska pink salmon harvest was 11.2 million (Districts 1-8, all harvest code, all gear), which was below the 10-year average of 23.2 million. For all of Southeast Alaska, excluding the Yakutat area, the pink salmon harvest was 58.9 million, which was very close to the preseason forecast of 55 million. The total 2011 Southeast Alaska pink salmon escapement index of 14.3 million index fish was ranked as the 12th highest since 1960, but was slightly below the recent 10-year average of 15.2 million. Biological escapement goals are in place for three subregions in Southeast Alaska and pink salmon escapement goals were reached for all three sub-regions in 2011. Many purse seine vessels moved to northern Southeast Alaska as the season progressed to harvest strong pink salmon returns in that area and this shift in effort may have reduced catches in southern Southeast.

Sockeye salmon catches in Alaska boundary area gillnet and purse seine fisheries, including treaty fisheries, were below average in all areas, except District 102 seine where catches were average. The Hugh Smith Lake adult sockeye salmon escapement was 22,000, which was above the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. The expanded peak survey count of 113,000 McDonald Lake sockeye salmon was near the upper bound of the 55,000 to 120,000 sustainable escapement goal range.

Alaska boundary area gillnet and purse seine summer chum salmon catches were above average. The southern Southeast Alaska wild-stock escapement index, which has a sustainable escapement goal of an aggregate 68,000 index spawners to 13 summer run chum salmon streams, was 157,000 making 2011 the third highest in the time series.

Gillnet and purse seine coho catches in the Alaska boundary area were below average while coho escapement counts and estimates were within or above goal. The combined peak count in the 14 surveyed streams in the Ketchikan area of 5,202 spawners was within the goal of 4,250-8,500 spawners. The total escapement of 2,137 spawners to Hugh Smith Lake ranked 5th highest in 30 years and was well-above the biological goal range (500-1,600 spawners).

In Canadian Area 1 there no longer are commercial net interception fisheries on passing salmon stocks in Area 1. No pink or chum surpluses were identified in-season therefore there were no terminal gillnet or seine fisheries in Area 1. Catches in the Area 1 troll fishery were above the previous decadal average for sockeye (6,152 vs. 1,487) and coho (220,279 vs. 103,690) but below average for pink (52,221 vs. 62,588).

Sockeye catches were small in Area 3 with gillnets catching 70,075 compared to the previous decadal average of 255,093 and seines catching 60,422 compared to the previous decadal average of 70,724. Pink catches were also well below average in Area 3 with gillnets catching 28,978 compared to the previous decadal average of 212,947 and seines catching 289,907 compared to the previous decadal average of 1,238,669.

Sockeye catches were low in Area 4 with gillnets catching 249,050 compared to the previous decadal average of 533,614 and seines catching 60,843 compared to the previous decadal average of 183,511. Pink catches were also below average in Area 4 with gillnets catching 95,742 compared to the previous decadal average of 117,659 and seines catching 97,970 compared to the previous decadal average of 382,670.

Catch and effort in Area 5 was well below average for gillnets and no seine fishery occurred in Area 5 in 2011.

Returns of North Coast sockeye stocks were slightly higher than anticipated in 2011. The preliminary Nass sockeye total return to Canada (TRTC) estimate of 460,941 was above the pre-season forecast of 420,000. The Skeena preliminary total return estimate of 1.9 million was also slightly higher than the pre-season total return sibling forecast of 1.7 million. Pink returns throughout the North Coast were much lower than expected based on the strong brood year escapements. Pink escapements in Area 3 and 4 were approximately one tenth of the brood year escapement. Chum escapements continued to be poor and retention of chum were not permitted by gillnet or seine in Areas 3 to 5.

MANAGEMENT PERFORMANCE

Pacific Salmon Treaty based harvest sharing agreements were renewed in 2009 for the Northern Boundary area fisheries – Alaska District 104 purse seine, Alaska District 101 drift gillnet, Canadian Area 3 net, and Canadian Area 1 troll. The agreements are “abundance based” where the allowable harvest is a percentage of the Annual Allowable Harvest (AAH). The AAH is the total return of applicable stocks minus the lesser of: 1) the actual escapement, or 2) the escapement goal. Catches over or under the AAH are summed over the period of the agreement to allow for annual variation.

The run size of Alaskan pink salmon returning to Districts 101-103 determines the allowable harvests of these stocks in Canada's Area 3 (1-4) net and Area 1 troll fisheries.

In Alaska's District 104 purse seine fishery, the Nass and Skeena sockeye salmon run size determines the AAH of these stocks prior to Statistical Week 31. In the District 104 purse seine fishery the agreement specifies a harvest, from the beginning of the season through Statistical Week 30, of 2.45% of the combined AAH of both the Nass and Skeena River runs. The fishery opens the first Sunday in July; in 2011 the initial opening was July 3 (Week 28). The 2011 pre-Week 31 fishing plan for District 104 was based on returns of local Alaskan stocks as well as the Canadian Department of Fisheries and Oceans (DFO) preseason forecast returns of about 523,000 Nass River sockeye salmon and about 1.6 million Skeena River sockeye salmon. The preseason forecasts result in a total projected return of 2.1 million Nass and Skeena sockeye salmon which, minus an escapement goal of 1.1 million, would result in an AAH of about 1 million. Using this forecast, the 2011 pre-Week 31 AAH was approximately 25,000 Nass and Skeena sockeye salmon.

In Alaska's District 101 gillnet fishery, the AAH is based solely on the run size of Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less. In the District 101 (Tree Point) drift gillnet fishery, the agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The return of Nass sockeye salmon was forecast at 523,000 in 2011 which, minus an escapement goal of 200,000, would result in an AAH of about 323,000. Using this forecast the 2011 allowable harvest in the District 101 gillnet fishery was about 44,000 Nass River sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June which was June 19 (week 26) in 2011. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan (PSMP) sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

For the year 2011, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49 percent of the AAH of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 20.72 million pink salmon, the Alaskan Districts 101, 102 and 103 AAH was 9.97 million pink salmon. The resulting Area 3-1 to 3-4 Canadian commercial net total allowable catch of this AAH was approximately 248,340 pink salmon of Alaskan Districts 101, 102 and 103 origin.

In the Canadian northern boundary area, pink salmon returns were anticipated to be above average for both Area 3 and Area 4, based on brood year return strength. Returns to Area 3 and 4 streams were well below expectations in 2011. The 2011 Canadian pink salmon catch in Sub-areas 3-1 to 3-4 was 160,757 and a preliminary estimate of the Alaska stock component of this catch is estimated to be 145,919, or 1.46 % of the AAH, well below the allotted 2.49 % of the AAH of 248,340 pieces.

In addition, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon. With a Total Return of approximately 20.72 million pinks, the Alaskan Districts 101, 102 and 103 AAH was 9.97 million pinks. The resulting Area 1 Canadian commercial troll total allowable catch of this AAH was approximately 256,319 pinks of Alaskan Districts 101, 102 and 103 origin.

The Canadian commercial troll fishery targeting pink salmon was open in the northern portion of Area 1 (Dixon Entrance AB Line) from July 1 to September 30. Pink retention was also permitted during the

Chinook directed fishery in parts of Area 1 which opened June 9th and closed for Chinook retention June 21st. Pink salmon directed effort was very minimal and the fishery harvested a total of 52,221 pink salmon, with an estimated 49,525 being of Alaskan origin. This equates to 0.50 % of the Alaskan District 101, 102 and 103 pink AAH, well below the annex agreement for 2.57 percent of the Alaskan Districts 101, 102 and 103 pink salmon AAH.

2012 Forecasts

The Southeast Alaska pink salmon harvest in 2012 is predicted to be weak, with a point estimate of 17 million fish (80% confidence interval 10-29 million fish). The forecast of 17 million pink salmon is well below the recent 10-year average harvest of 40 million fish. The NOAA Auke Bay Lab's 2011 peak June-July juvenile pink salmon CPUE statistic from upper Chatham and Icy straits in northern Southeast Alaska ranked in the bottom third of the 14 previous years that NOAA has collected that information, which may indicate poor freshwater and early marine survival for pink salmon set to return in 2012. Pink salmon harvests associated with the bottom third of indices in the NOAA data set ranged between 12 and 20 million fish. The 2010 pink salmon harvest of 13.7 million in southern Southeast Alaska was only 57% of the recent 10-year average, but the escapement index value of 5.9 million fell within the escapement goal range of 3.0 to 8.0 million index fish. Escapement indices were within or exceeded management targets for all Districts and for all 18 pink salmon stock groups within this sub-region. Formal forecasts are not made for species other than pink salmon in Southeast Alaska.

The 2012 Nass sockeye total return is estimated to be 446,000 (with a 25% probability of the return exceeding 553,000 and a 75% probability the return will exceed 363,000) providing only modest marine net and Nisga'a in-river commercial opportunities. For the Skeena, the sibling model forecast predicts a 50% probability of approximately 1.4 million sockeye returning to the Skeena in 2012, with a 25% probability of the return exceeding 2.0 million and a 75% probability the return will exceed 1.0 million. The Nass and Skeena area pink return predictions are poor and very poor based on brood year escapements. As a result, directed Skeena sockeye or pink salmon harvest opportunities are unlikely in 2012.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

SALMON MANAGEMENT AND ENHANCEMENT PLANS FOR THE STIKINE, TAKU AND ALSEK RIVERS, 2011

TCTR (11)-3 – April 2011.

Management of transboundary river salmon to achieve conservation, allocation and enhancement objectives, as stipulated by the Pacific Salmon Treaty (PST), requires a co-operative approach by Canada and the United States. It is important that both Parties have a clear understanding of the objectives and agree upon procedures to be used in managing the fisheries, including the criteria upon which modifications of fishing patterns will be based. This document is intended to facilitate co-operative salmon management, stock assessment, research and enhancement on transboundary stocks of the Stikine, Taku, and Alsek rivers conducted by the Canadian Department of Fisheries and Oceans (DFO), the Tahltan and Iskut First Nations (TIFN), the Taku River Tlingit First Nation (TRTFN), the Champagne & Aishihik First Nation (CAFN) and the Alaska Department of Fish and Game (ADF&G).

The report contains, by river system and species, the 2011 salmon run outlooks, spawning escapement goals, a summary of harvest sharing objectives, and an outline of management procedures to be used during the conduct of the 2011 fisheries. Numerical forecasts are presented for: Stikine sockeye and Chinook and Taku Chinook, which are required by the PST; Taku sockeye and coho; and Alsek sockeye and Chinook salmon. Outlooks for other stocks are given qualitatively with reference to brood year

escapement data where available. The report also contains joint plans for fry plants and egg collections and a detailed list of proposed field projects for 2011, identifying agency responsibility and contacts for the various functions within the projects.

FINAL ESTIMATES OF TRANSBOUNDARY RIVER SALMON PRODUCTION, HARVEST AND ESCAPEMENT AND A REVIEW OF JOINT ENHANCEMENT ACTIVITIES IN 2000, TCTR (11)-4 – June 2011.

Estimates of catches and escapements of Pacific salmon returning to the transboundary Stikine, Taku, and Alsek Rivers for 2000 are presented and compared with historical patterns. Average, unless stated differently, refers to the 1990-1999 average. Relevant information pertaining to the management of appropriate U.S. and Canadian fisheries is presented and the use of inseason management models is discussed. Results from transboundary river sockeye salmon *Oncorhynchus nerka* enhancement projects are also reviewed.

Stikine

The 2000 Stikine sockeye salmon run was estimated at 78,500 fish, of which 55,200 fish were harvested in various fisheries including test fisheries. An estimated 19,900 Stikine fish escaped to spawn, including 5,800 fish that migrated to the Tuya block that were not harvested. The catch and the run were below the average and the lowest since 1990. Spawning escapements were also below goals. The estimated U.S. commercial catch of Stikine sockeye salmon in Districts 106 and 108 was 21,700 fish and the Canadian inriver commercial, aboriginal, and ESSR fishery catches were 21,400, 6,100, and 1,300 fish, respectively. A U.S. test fishery in District 108 harvested 3,600 Stikine sockeye salmon and the Canadian inriver test fishery catch included 2,400 sockeye salmon. The postseason estimate of 78,500 sockeye salmon was below the preseason forecast of 138,000 fish. The Stikine Management Model over forecasted the run throughout the season. Weekly inseason model forecasts ranged from 95,000 to 183,000 sockeye salmon and the final inseason estimates were 54,000 (U.S.) and 47,000 (Canada) fish. Based on the inseason model estimates, both Parties harvested below their 50% target of the TAC. However, the final postseason run size estimate decreased to no allowable catch therefore both countries exceeded their 50% portion of the TAC: Canada harvested 14,762 (mainstem and Tahltan) and the U.S. harvested 9,983 (mainstem and Tahltan).

The broodstock collection and otolith sampling removed 1,700 and 400 sockeye salmon, respectively from the escapement to Tahltan Lake leaving a spawning escapement of 4,000 fish; below the spawning escapement goal of 20,000 fish. The estimated spawning escapement of 10,100 mainstem Stikine sockeye salmon was also below the objective of 20,000 to 40,000 fish for this stock group.

The Chinook salmon *O. tshawytscha* catch in Canadian commercial and aboriginal fisheries in the Stikine River was 3,100 large fish and 600 jacks; both above the average. An additional 700 large and 20 jack Chinook salmon were taken in the Canadian inriver test fishery. The U.S. marine catch of Chinook salmon (all stocks) in the District 106 and 108 mixed stock gillnet fisheries was 2,900 fish and was above average; the contribution of Stikine Chinook stocks is unknown. The U.S. District 108 test fishery harvested 20 Chinook salmon. The Chinook salmon spawning escapement of 6,600 large adults through the Little Tahltan River weir in 2000 was above average and above the revised joint U.S./Canada escapement goal range 2,700 to 5,300 fish. The total Stikine River Chinook salmon escapement as estimated from a mark recapture study was 27,500 fish and was above average (1996-1999).

As with Chinook salmon, the U.S. marine harvest of Stikine coho salmon *O. kisutch* was unknown since there is no stock identification program for this species. Mixed stock coho salmon catches in Districts 106

and 108 were 96,200 and 5,700 fish, respectively, and both were below average. Alaskan hatchery fish comprised 50% (51,000 fish) of the coho salmon harvest from the two districts. The Canadian inriver coho salmon catch of 300 fish was below average. Test fishery coho salmon catch per unit effort (CPUE) indicated the inriver coho salmon run was 20% lower than the inriver sockeye salmon run. This suggests the total coho salmon escapement was well below the interim escapement goal range of 30,000 to 50,000 fish. Aerial surveys of coho salmon spawning index sites also indicated a below average escapement, as did the total coho salmon run size of 25,500 fish (range: 13,700 to 55,800) as generated from a pilot, mark-recapture study.

Taku

The postseason estimate of the 2000 Taku sockeye salmon run was 236,400 fish, including an estimated catch of 161,100 fish and an above-border spawning escapement of 75,300 sockeye salmon. The run size was average, the total catch was above average, and the escapement was within the escapement goal range of 71,000 to 80,000 fish. An estimated 131,700 Taku sockeye salmon was harvested in the District 111 commercial fishery and was above average. An estimated 900 sockeye salmon was harvested in the U.S. inriver personal use fishery. Canadian inriver commercial and aboriginal fishery catches included 28,000 and 150 sockeye salmon, respectively. The commercial catch was average, whereas the aboriginal catch was below average. Since the escapement goal was expressed as a range, the resulting total allowable catch was also expressed as a range. In 2000, Canada harvested an estimated 17-18% and the U.S. harvested 80-85% of the total allowable catch.

The catch of large Chinook salmon in the Canadian commercial fishery in the Taku River was 1,600 fish, and was average; the harvest of 90 jack Chinook salmon was below average. The Canadian aboriginal fishery in the Taku River harvested 50 large Chinook salmon. The Chinook salmon catch in the District 111 mixed stock gillnet fishery was 1,100 fish and was below average. An estimate 40% of the catch was Alaska hatchery origin. The escapement of 6,000 Chinook salmon counted in Taku River index areas was below average but within the recently revised index escapement goal range of 5,800 to 10,500 fish.

The estimated above border run of Taku coho salmon in 2000 was 70,100 fish which was below average. The Canadian inriver commercial catch included 4,400 coho salmon which was below average. After upriver Canadian catches are subtracted from the inriver run, the above-border-spawning escapement was estimated at 64,700 coho salmon, which exceeds the minimum escapement goal of 38,000 fish. The U.S. harvest of 7,500 coho salmon in the District 111 mixed stock fishery which below average. Alaskan hatcheries contributed an estimated 7% of the District 111 harvest, or 500 fish.

The harvest of 54,700 pink salmon *O. gorbuscha* in District 111 was below average. Pink salmon were not retained in the Canadian commercial inriver fishery in 2000. The escapement of pink salmon to the Taku River was likely below average as evidenced by the fish wheel, catch and release of 6,500 pink salmon which was below average.

The catch of chum salmon *O. keta* in the District 111 fishery was 668,600 fish, composed of 665,600 summer run fish (prior to mid-August) and 3,000 fall run fish. The catch of summer chum salmon, primarily Alaskan hatchery stocks, was 2.9 times average and was the highest on record. The catch of fall chum salmon, composed of wild Taku River and Port Snettisham stocks, was below average. As with pink salmon, there was non-retention of chum salmon in the Canadian inriver fishery and the reported catch was 0 fish in 2000. Although spawning escapement was not known the Canyon Island fish wheel catch of 400 chum salmon was average.

Alsek

The Alsek sockeye salmon harvest of 9,500 fish in the U.S. commercial fishery was below average and was the fourth lowest on record. The Canadian inriver catch of 700 fish was below average and was also the fourth lowest on record. There were no fish retained in the sport fishery. The low catches were the result restrictions and closures in the commercial, sport, and aboriginal fisheries due to conservation concerns. The Klukshu River weir count of 5,600 sockeye salmon was below average and the second lowest on record.

The Chinook salmon run to the Alsek River seemed average to below average. The U.S. Dry Bay catch of 700 Chinook salmon was above average. The combined Canadian sport and aboriginal fishery catch of 100 Chinook salmon was below average. The 1,400 Chinook salmon counted through the Klukshu River weir was below average. Of the total count, 1,300 Chinook salmon were estimated to have spawned, thus achieving the escapement goal range of 1,100 to 2,300 Chinook salmon, established by the TTC for 2000. Aerial survey index counts of other spawning systems were below average.

Current stock assessment programs prevent an accurate comparison of Alsek coho salmon runs with historical runs. The U.S. Dry Bay catch of 5,100 coho salmon was average, while the combined Canadian inriver aboriginal and sport fishery catch of 50 fish was below of average. The low catches were due to closures in the fisheries due to sockeye salmon conservation concerns. The operation of the Klukshu weir does not provide a complete enumeration of coho salmon into this system since it was removed before the run was over; however, it does provide a suitable annual index. The count of 4,800 coho salmon was twice the average.

Enhancement

Eggs and milt were collected from the year 2000 sockeye salmon escapements at Tahltan and Tatsamenie Lakes. For the fourth year in a row the 6.0 million egg-take goal was not achieved at Tahltan Lake due to low escapement. A total of 2.4 million eggs was collected at Tahltan Lake. At Tatsamenie Lake, the 3.0 million egg collection goal was achieved; however this goal was lower than the 5.0 million-egg target specified in the treaty. The committee had set a lower goal as they seek to improve the low survivals of fry planted in the lake.

Outplants of 1999 brood-year sockeye salmon fry in May and June 2000 included 2.2 million fry into Tahltan Lake, 0.9 million fry of Tahltan Lake origin into Tuya Lake, and 0.4 million fry into Tatsamenie Lake. Green-egg to planted-fry survivals were 80%, 82%, and 76% for these outplants, respectively. Survival to emergence was generally at, or above, expected levels and there were no losses to Infectious Hematopoietic Necrosis (IHN). Losses from IHN have occurred in the past at Snettisham Hatchery and are expected in sockeye salmon culture.

Outmigrant smolt sampling was conducted at Tahltan and Tatsamenie Lakes in 2000. Total emigration from Tahltan Lake was estimated at 619,300 smolts with 43% (266,000 smolt) from past fry plants. Sampling at Tuya Lake was conducted to estimate age and size composition of the outmigrants but outmigration magnitude was not estimated. Sample size was limited due to logistics and timing. The Tatsamenie Lake mark-recapture program estimated that 191,400 smolts out-migrated from that system with planted fish contributing about 20% (39,000 smolts).

The egg incubation and thermal-marking program was continued at Snettisham Hatchery in 2000. Snettisham hatchery is operated by DIPAC (Douglas Island Pink and Chum, Inc.), a private aquaculture organization in Juneau. A co-operative agreement between ADF&G and DIPAC provides for Snettisham hatchery to serve the needs of the joint TBR enhancement projects.

Adult sockeye salmon otoliths were processed inseason by the ADF&G otolith lab to estimate the weekly contribution of fish from U.S./Canada TBR fry planting programs to the District 106, 108, and 111 gillnet fisheries and to Canadian commercial fisheries in the Stikine and Taku Rivers. Contribution estimates of planted fish to Alaskan catches were 12,500 Stikine sockeye salmon to District 106 and 108 (13% of catch) and 1,600 Taku sockeye salmon to District 111 (1% of catch). Final estimates of contributions to Canadian fisheries included 13,600 sockeye salmon (49% of catch) to Stikine fisheries and 400 sockeye salmon to the Taku fisheries (2% of catch).

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

G. SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF 2010 MASS MARKING AND MARK SELECTIVE FISHERY PROPOSALS. SFEC (11)-1 – April 2011.

This report provides a review for mass marking and mark selective fisheries proposals received by November 2009 for 2010. Throughout this report a mass marked (MM) fish refers to a fish with an adipose fin clip. Double index tag (DIT) groups include two paired CWT groups, one marked (adipose fin removed) and one unmarked (adipose fin left intact). The terms 'marked' and 'clipped', and likewise 'unmarked' and 'unclipped', are used interchangeably.

Summary of 2010 Mass Marking Proposals

Marking Programs

Seventeen proposals (8 coho and 9 Chinook) were received for mass marking (MM) in 2010 (Appendix D). The Selective Fishery Evaluation Committee (SFEC) believes these proposals cover all but one MM program with international PSC implications⁴.

Approximately 38 million coho are proposed to be MM coast wide in 2010 (Table 1 and Figure 1A), a level comparable to that proposed in 2009. Essentially all hatchery coho production from southern BC and southern US hatcheries is now MM with the exception of unmarked DIT groups and releases intended for supplementation. Currently there are 20 coho salmon DIT groups (Table 1), of which the majority is released from Puget Sound or Washington coastal facilities; two are released from BC and three from the Columbia River Basin and the balance from Puget Sound and Washington Coast.

Approximately 110 million Chinook are proposed to be MM in 2010 from southern US Chinook hatcheries (Table 1; Figure 1B), approximately 10 million more than were proposed in the previous year. This increase is primarily due to the proposed marking of Upriver Brights (URB) Chinook at Ringold and Priest Rapids by WDFW. Most hatchery Chinook production from southern US hatcheries intended for harvest is now MM, with the exception of the Snake River, unmarked DIT groups and releases intended for supplementation. Currently there are 17 Chinook salmon DIT groups (Table 1), of which nine are released from Puget Sound facilities, one released from the coast, and three spring stock releases and four fall stock releases in the Columbia River.

⁴ No proposal was submitted for the possible marking of 600,000 Snake River fall Chinook fingerlings released below Hells Canyon Dam

Sampling and DIT Programs

Assuming recent exploitation rates and sampling programs, the SFEC estimates the proposed MM of coho stocks in 2010 will result in annual encounters of untagged and marked coho in sampling programs of approximately 1,800 coho in Alaska and 14,400 coho in Canada (Table 4). For southern US Chinook stocks, annual encounters of untagged marked Chinook in sampling program are projected to be approximately 15,500 Chinook in Alaska, 27,900 Chinook in Canada, and 7,600 Chinook in California (Table 4).

Prior to MM, the adipose fin clip was employed as a visual indicator for fish containing a CWT. Consequently, sampling programs were designed which collected heads from fish with missing adipose fins to locate and extract CWTs. With MM, a large number of marked fish do not contain CWTs; further, CWTs must be recovered from both marked and unmarked fish to obtain data for DIT releases to estimate fishery impacts. Electronic tag detection (ETD) equipment has been developed as a means to efficiently identify marked and unmarked fish containing CWTs. However, ETD is not employed coast wide because of continuing reservations by some agencies regarding the cost, accuracy, and practical feasibility of incorporating this technology into their sampling programs. ADFG, CDFO, ODFW, and CDFG all conduct sampling programs which will not recover the unclipped component of DIT programs required to assess impacts of MSFs.

Washington State (WA) continues to adequately sample and report CWT recoveries of unmarked DIT releases in marine MSFs and some freshwater MSFs. Starting in 2008, Canada also committed to full electronic sampling in all commercial fisheries for Chinook and reporting of all DIT CWTs. Coho in all BC commercial fisheries have also been electronically sampled with the exception of the coho landed by the Northern BC 'ice boat' fleet. Visual sampling only is used to recover CWTs in that fishery. Canada continues to rely on the Voluntary Head Recovery Program to recover CWTs from non-selective recreational fisheries and thus, no unmarked DIT recoveries are available from them.

MSFs have been prosecuted for coho since 1998 and for Chinook since 2003. For 2010, 37 MSF proposals were received; 13 for coho and 23 for Chinook (Table 5). The due date for MSF proposals is November 1 (Appendix A); proposals received after that date are not included in this review. Proposals for coho and Chinook salmon MSFs for 2010 were received for CDFO (n=5), WDFW (n=23, ODFW (n=3) and combined WDFW/ODFW fisheries (Columbia River fisheries, n=5); the specifics of the fisheries are summarized in Table 5.

Multiple MSFs are expected to occur in 2010 in British Columbia (BC), Washington (WA ocean areas 1 through 4 and Columbia River) and Oregon (OR). Table 8 and Table 9 were constructed using historical information on encounters of marked and tagged fish for the run years 2006-8 and 2003-8 to identify coho and Chinook tagged stocks that can be expected in these areas with MSFs.

Issues and Concerns

Proposals

All of the requested MM and MSF proposals were submitted prior to the SFEC meeting, but most of these were not submitted by the deadline of November 1st. Late submission of proposals increases the difficulty of SFEC in completing timely reviews.

In general all information requested was supplied for MM proposals. The agencies did an improved job of submitting proposals for MSFs for 2010. Table 6 summarizes the information missing from the proposals submitted.

An alternative spreadsheet template has been provided for MSF proposals, modeled on the CDFO proposals submitted in January of 2009 for 2010 fisheries.

Post Season Reports

Every year the SFEC has requested that agencies send post-season reports with information necessary for analysis of CWT data for each MSF prosecuted. In general, the agencies have not provided these reports. In order to reduce duplicative reporting, the SFEC recommended that preliminary information on the conduct of MSFs be included as a component of the PST requirement for exchange of post-season fishery reports. Although some information may be available in agency reports issued at a later date, the failure to provide information requested in post-season reports interferes with SFEC's capacity to assess impacts on the viability of the CWT program and the ability to assess total mortality under PSC regimes for Chinook and Southern coho. It is recommended that agencies prioritize this task and work with their SFEC representatives to develop and provide these reports annually to the PSC in the required time frame.

New Chinook MSFs

New MSFs were proposed by WDFW in ocean sport fisheries in Washington Statistical Areas 1 (Ilwaco) and 2 (Westport-Grays Harbor), and by WDFW and ODFW in the Columbia River on fall Chinook. CDFO provided new proposals for a Chinook MSF in the Strait of Juan de Fuca (SJDF) that was prosecuted for the first time in 2008 and for new fisheries in areas off the West Coast of Vancouver Island (WCVI) (Table 5 to Table 7). The PSC indicator stocks expected to be encountered in the Washington Statistical Areas 1 and 2 and the Columbia River MSFs targeting fall Chinook are shown in Table 10. Some of these stocks are currently DIT stocks, but the SFEC recommends that further stocks be considered for inclusion as DITs.

As MSFs are now proposed for fisheries off WCVI and WA Statistical Areas 1 and 2, fish taken in non-selective fisheries (NSFs) in all coastal areas can soon be expected to have been subject to prior MSFs. The SFEC recommends that agencies review their sampling methods with respect to the capacity to recover fish from marked and unmarked DIT groups in order to provide data for estimation of the impact of MSFs on wild stocks of interest

Complex MSF Regulations

Regulations to implement MSFs are becoming increasingly complex. Different types of MSF regulations are part of the MSFs proposed by Canada, Washington and Oregon for recreational fisheries. In most cases this is a mixed bag, where only marked adults may be kept but marked and unmarked juveniles may be retained, but as MSFs expand a variety of types of MSF regulations are being proposed (Table 11). The SFEC has not developed adequate methods for estimating impacts on marked and unmarked fish under the variety of complex regulations being employed for MSFs. The agencies proposing MSF fisheries should provide the methods they propose to use to measure the impacts of these fisheries.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

It is recommended that the PSC request agencies to submit proposals for all potential 2011 MM and MSFs, and for agencies to provide both preliminary and final post-season reports on the conduct of MSFs on the schedule adopted by the PSC. Agencies should be reminded of the importance of completing these tasks so that proposals and post MSF reports are submitted in a timely manner.

Interagency Coordination and Cooperation

MM, DIT, and CWT sampling programs are not sufficiently coordinated to support analysis by PSC technical committees. It is also not clear that agencies are collecting adequate and necessary data to permit appropriate estimation of unmarked CWTs recoveries in fisheries and escapements so that cohort reconstructions can be carried out on unmarked DIT releases. With the expansion of Chinook marine fisheries, the geographical range of electronic CWT sampling needs to be expanded and the number of DIT stocks needs to be increased. The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system; these processes should build upon recommendations presented by the CWT Work Group in 2008 (PSC CWT Workgroup 2008). In addition, encounters of large numbers of MM Chinook are impacting catch sampling programs in northern fisheries; for example, approximately 30% of the Chinook caught in the troll fishery with a missing adipose fin do not contain a CWT. The increased costs to deal with the additional marked fish are not quantified, but will impact the program.

H. HABITAT AND RESTORATION TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

Publications of the Pacific Salmon Commission

PART VI

PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

Documents listed herein are available to domestic fishery agencies of Canada and the United States, research organizations, libraries, scientists and others interested in the activities of the Commission, through the offices of the Secretariat, 600 - 1155 Robson Street, Vancouver, B.C., V6E 1B5. Photocopying charges may be levied for documents which are out of print.

Reports published by the Pacific Salmon Commission after March 31, 2000 including Commission annual reports, annual reports of the Fraser River Panel, Joint Technical Committee reports and technical reports of the Pacific Salmon Commission are also available in full text format on the Commission's website at www.psc.org.

Documents listed here are those which were published during the period from 2011/12 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at www.psc.org/publications.

A. ANNUAL REPORTS

No reports were finalized for publication during this reporting period.

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

TCCHINOOK (11)-3 *2010 Annual Report of the Exploitation Rate Analysis and Model Calibration*. April 2011.

TCCHINOOK (11)-4 *Methodologies to Monitor the Performance of Individual Stock-Based Management Fisheries*. December 2011.

TCCHINOOK (12)-1 *2011 Annual Report of Catches and Escapements*. January 2012.

ii. Joint Chum Technical Committee

TCCHUM (11)-1 *2009 Post Season Summary Report*. June 2011.

iii. Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

iv. Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

v. Joint Northern Boundary Technical Committee

TCNB (12)-1 *U.S./Canada Northern Boundary Area 2011 Salmon Fisheries Management Report and 2012 Preliminary Expectations. January, 2012.*

vi. Joint Transboundary Technical Committee

TCTR(11)-3 *Salmon Management and Enhancement Plans for the Stikine, Taku and Alsek Rivers, 2011. April 2011.*

TCTR (11)-4 *Final Estimates of Transboundary River Salmon Production, Harvest and Escapement and a Review of Joint Enhancement Activities in 2000. June 2011.*

vii. Selective Fishery Evaluation Committee

SFEC (11)-1 *Review of 2010 Mass Marking and Mark Selective Fishery Proposals. April 2011.*

viii. Habitat and Restoration Technical Committee

No reports were finalized for publication during this reporting period.

C. REPORTS OF THE FRASER RIVER PANEL

Report of the Fraser River Panel to the Pacific Salmon Commission on the 2007 Fraser River Sockeye and Pink Salmon Fishing Season. PSC Staff. March 2012.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

Andel, J.E. and I.M. Boyce. *Mark-Recapture Studies of Taku River Adult Sockeye Salmon Stocks in 2007. PSC Tech. Rep. No. 27, October 2011*

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports were finalized for publication during this reporting period.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON COMMISSION

Responsibility for maintenance of the library of the International Pacific Salmon Fisheries Commission, on its termination December 31, 1985, was transferred to the Pacific Salmon Commission. Documents in the Library include historical archival papers which are available to researchers and other interested parties through contact with the Pacific Salmon Commission's Librarian.

Publication of John F. Roos' History of the International Pacific Salmon Fisheries Commission, and P. Gilhousen's Estimation of Fraser River Sockeye Escapements ended all publication series of the International Pacific Salmon Fisheries Commission. Copies of all in-print Progress Reports and Bulletins of the International Pacific Salmon Fisheries Commission are available free of charge through the Library of the Pacific Salmon Commission. Copies of the History of the International Pacific Salmon Fisheries Commission may also be ordered through the Library of the Pacific Salmon Commission.

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 2009/10 were:

Post Season Report for 2011 Canadian Treaty Limit Fisheries. Canada Department of Fisheries and Oceans. January, 2012.

Preliminary 2011 Post Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty. United States Section, Pacific Salmon Commission. January, 2012.

Report of the Auditors for 2011/2012

PART VII
AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE
PERIOD APRIL 1, 2011 TO MARCH 31, 2012

Financial Statements of

PACIFIC SALMON COMMISSION

Year ended March 31, 2012



KPMG LLP
Chartered Accountants
Metrolower II
Suite 2400 - 4720 Kingsway
Burnaby BC V5H 4N2
Canada

Telephone (604) 527-3600
Fax (604) 527-3636
Internet www.kpmg.ca

INDEPENDENT AUDITORS' REPORT

To the Commissioners of the Pacific Salmon Commission

We have audited the accompanying financial statements of the Pacific Salmon Commission, which comprise the statement of financial position as at March 31, 2012, the statements of operations and fund balances and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information. The financial statements have been prepared by management in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009; this includes determining that the basis of accounting is an acceptable basis for the preparation of these financial statements in the circumstances, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.



Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Pacific Salmon Commission as at March 31, 2012, and its results of operations and its cash flows for the year then ended in accordance with the financial reporting provisions of Chapter IX of the Pacific Salmon Commission Bylaws amended and adopted February 12, 2009.

Basis of Accounting and Restriction on Use

Without modifying our opinion, we draw attention to note 2(a) to the financial statements, which describes the basis of accounting. The financial statements are prepared to assist the Pacific Salmon Commission to meet the requirements of the Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon effective January 1, 2009. As a result, the financial statements may not be suitable for another purpose. Our report is intended solely for the Commissioners and the Governments of Canada and the United States of America and should not be used by any other parties.

KPMG LLP

Chartered Accountants

September 27, 2012

Burnaby, Canada

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2012, with comparative figures for 2011

	General Fund	Restricted				Total	2012	2011
		Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund			
Assets								
Current assets:								
Cash	\$ 672,746	\$ -	\$ -	\$ 1,426,263	\$ -	\$ 1,426,263	\$ 2,099,009	\$ 1,890,737
Accounts receivable	186,756	831	4,135	-	-	4,966	191,722	212,856
Due from related parties (note 7)	59,458	-	-	-	-	-	59,458	157,578
Prepaid expenses	29,537	-	-	-	-	-	29,537	32,051
Short-term investments	710,188	100,335	489,477	-	-	589,812	1,300,000	1,550,000
	1,658,685	101,166	493,612	1,426,263	-	2,021,041	3,679,726	3,843,222
Capital assets (note 3)	-	-	-	-	377,169	377,169	377,169	363,560
Accrued employee future benefit asset (note 5)	43,865	-	-	-	-	-	43,865	215,733
	\$ 1,702,550	\$ 101,166	\$ 493,612	\$ 1,426,263	\$ 377,169	\$ 2,398,210	\$ 4,100,760	\$ 4,422,515
Liabilities and Fund Balances								
Current liabilities:								
Accounts payable and accrued liabilities	\$ 829,215	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 829,215	\$ 1,259,517
Accrued employee future benefit liability (note 5)	561,274	-	-	-	-	-	561,274	529,535
Deferred revenue	-	-	-	-	-	-	-	489,125
	1,390,489	-	-	-	-	-	1,390,489	2,278,177
Fund balances:								
Unrestricted (note 4)	312,061	-	-	-	-	-	312,061	71,883
Restricted	-	101,166	493,612	1,426,263	-	2,021,041	2,021,041	1,708,895
Invested in capital assets	-	-	-	-	377,169	377,169	377,169	363,560
	312,061	101,166	493,612	1,426,263	377,169	2,398,210	2,710,271	2,144,338
	\$ 1,702,550	\$ 101,166	\$ 493,612	\$ 1,426,263	\$ 377,169	\$ 2,398,210	\$ 4,100,760	\$ 4,422,515

See accompanying notes to financial statements.

Approved on behalf of the Commission:

W. Tom Allen

Chair, Standing Committee on Finance and Administration

Paul Macgillivray

Vice-Chair, Standing Committee on Finance and Administration

PACIFIC SALMON COMMISSION

Statement of Operations and Fund Balances
(Expressed in Canadian dollars)

Year ended March 31, 2012, with comparative figures for 2011

	General Fund	Restricted				Total	2012	2011
		Working Capital Fund	Test Fishing Fund	Special Research and Project Fund	Capital Assets Fund			
Revenue:								
Contributions from contracting parties (note 3)	\$ 3,759,272	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,759,272	\$ 3,572,062
Grants	128,874	-	-	2,438,711	-	2,438,711	2,567,585	3,335,960
Interest	16,151	1,167	5,818	-	-	6,985	23,136	11,681
Other	64,405	-	-	-	-	-	64,405	38,463
Foreign exchange	170,158	-	-	-	-	-	170,158	(141,679)
Test fishing	1,251,690	-	-	-	-	-	1,251,690	1,137,233
	5,390,550	1,167	5,818	2,438,711	-	2,445,696	7,836,246	7,953,720
Expenses:								
Amortization	-	-	-	-	169,311	169,311	169,311	183,916
Salaries and employee benefits	2,834,079	-	-	-	-	-	2,834,079	2,854,639
Travel and transportation	76,230	-	-	-	-	-	76,230	78,957
Rents and communication	122,967	-	-	-	-	-	122,967	118,618
Printing and reproductions	723	-	-	-	-	-	723	5,093
Contract services	610,659	-	-	-	-	-	610,659	611,441
Materials and supplies	64,326	-	-	-	-	-	64,326	46,015
Test fishing	1,265,852	-	-	-	-	-	1,265,852	1,111,591
Loss on disposal of capital assets	-	-	-	-	8,830	8,830	8,830	229
Consultations and workshops	-	-	-	2,117,336	-	2,117,336	2,117,336	2,363,461
	4,974,836	-	-	2,117,336	178,141	2,295,477	7,270,313	7,373,960
Excess (deficiency) of revenue over expenses	415,714	1,167	5,818	321,375	(178,141)	150,219	565,933	579,760
Fund balance, beginning of year	71,883	102,051	501,956	1,104,888	363,560	2,072,455	2,144,338	1,564,578
Interfund transfers	(175,536)	(2,052)	(14,162)	-	191,750	175,536	-	-
Fund balance, end of year	\$ 312,061	\$ 101,166	\$ 493,612	\$ 1,426,263	\$ 377,169	\$ 2,398,210	\$ 2,710,271	\$ 2,144,338

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2012, with comparative figures for 2011

	2012	2011
Cash provided by (used in):		
Operations:		
Excess of revenue over expenses	\$ 565,933	\$ 579,760
Items not involving cash:		
Amortization	169,311	183,916
Loss on sale of capital assets	8,830	229
Net benefit plan expense	511,509	550,182
Employer contributions for employee future benefits	(307,902)	(479,741)
Net change in non-cash operating working capital	(797,659)	1,226,065
	150,022	2,060,411
Investing:		
Additions to capital assets	(193,345)	(76,809)
Proceeds on sale of capital assets	1,595	150
Redemption of short-term investments	1,500,000	-
Purchase of short-term investments	(1,250,000)	(1,500,000)
	58,250	(1,576,659)
Increase in cash	208,272	483,752
Cash, beginning of year	1,890,737	1,406,985
Cash, end of year	\$ 2,099,009	\$ 1,890,737

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Notes to Financial Statements
(Expressed in Canadian dollars)

Year ended March 31, 2012

1. Nature of organization:

The Pacific Salmon Commission (the "Commission") was established by the Treaty between the Governments of Canada and the United States of America (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Treaty was ratified on March 18, 1985 and effective January 1, 2009.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements have been prepared in accordance with Canadian generally accepted accounting principles, with the exception that expenses are recognized at the time that the commitment for goods and services are made through purchase orders, rather than at the time the goods or services are received. This exception is to comply with Chapter IX, Section D, Rule 11 of the Bylaws.

(b) Fund accounting and revenue recognition:

Revenue recognition:

The Commission follows the restricted fund method of accounting for contributions.

Restricted contributions related to general operations are initially deferred and recognized as revenue of the General Fund in the year in which the related expenses are incurred. All other restricted contributions are recognized as revenue of the appropriate restricted fund.

Unrestricted contributions are recognized as revenue of the General Fund in the year they are received or receivable, if the amount to be received can be reasonably estimated and collection is reasonably assured.

The Fund classifications are as follows:

- (i) The General Fund includes funds provided annually through contributions from the Contracting Parties. By agreement of the Contracting Parties, any unexpended balance remaining at the end of one fiscal year may be used to offset contributions in the following year or may be used to offset a shortfall between contributions and approved expenses in the following year. As a result all amounts are recognized as revenue once received or receivable.
- (ii) The Working Capital Fund represents monies contributed by the Contracting Parties to be used on a temporary basis to satisfy the capital requirements of the Committee until receipt of new contributions from the Contracting Parties at the beginning of a fiscal year, or for special programs not contained in the regular budget but approved during the fiscal year. Any surplus above a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the general fund and is treated as unrestricted income.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

2. Significant accounting policies (continued):

(b) Fund accounting and revenue recognition (continued):

- (iii) The Test Fishing Fund is established as a revolving fund in which a portion of net test fishing revenues realized in years of high abundance are reserved, to be used to support test fishing programs in years of low abundance and when conservation concerns are an issue.
- (iv) The Special Research and Project Fund represents monies set aside to fund additional programs as determined by the Contracting Parties, including studies related to Coho Salmon, US Grant Funds for Chinook Technical Committee Support, Chinook Sentinel Program, Anadromus Fish Grant, Decline in Survival of Fraser River Sockeye and the Killer Whale Workshop.
- (v) The Capital Assets Fund reflects the Commission's capital asset transactions. Amortization is charged to the Capital Assets Fund.

Transfers between the funds are reviewed and approved by the Commissioner.

(c) Financial instruments:

The Commission accounts for its financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement* and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*, as permitted for not-for-profit organizations.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets, or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

The Commission's financial instruments include cash, accounts receivable, short-term investments, accounts payable and accrued liabilities, and due to and due from related parties.

The Commission classifies its cash and short-term investments as held for trading, meaning that the financial assets are measured initially at fair value with transaction costs recognized immediately in the statement of operations. These assets are subsequently measured at fair value with gains and losses recognized in the statement of operations.

The Commission classifies its accounts receivable and due from related parties as loans and receivables which are recorded at amortized cost. The Commission classifies its accounts payable and accrued liabilities, and due to related parties as other liabilities which are also recorded at amortized cost, which approximates fair value due to the short term to maturity.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

2. Significant accounting policies (continued):

(d) Capital assets:

Capital assets are stated at cost less accumulated amortization. Costs of repairs and replacements of a routine nature are charged as a current expense while those expenses which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method as follows:

Automobiles	5 years
Boats	5 years
Computer equipment and software	3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	Over life of lease

(e) Income taxes:

The Commission is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(f) Post-employment benefits:

The Commission provides certain employee future benefits, including a defined benefit pension plan, which is funded by the Commission on an annual basis, and severance, life insurance and medical benefits, which are funded by the Commission as they become due.

The Commission accrues its obligations under employee benefit plans and the related costs as benefits are earned, net of returns on plan assets.

The Commission's policies are as follows:

- (i) The cost of retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service and management's best estimate of salary escalation and retirement ages of employees.
- (ii) The expected interest cost on any prior service obligation is calculated using management's estimate for the long-term rate of return.
- (iii) The expected return on plan assets is calculated at a market-related value for the assets.
- (iv) Any cumulative unrecognized actuarial gains and losses in excess of 10% of the projected benefit obligation will be amortized over the expected average remaining service life of the employee group covered by the program.
- (v) As at January 1, 2012, the Commission had an unamortized transitional asset of \$23,603 (2011 - \$6,719), which is being amortized over the average remaining service period of covered employees. The average remaining service life of the related employee group is 14 years and the average remaining service life of the employee group of the supplemental executive retirement plan is less than one year.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

2. Significant accounting policies (continued):

(g) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the year-end date are translated to equivalent Canadian amounts at the rate of exchange in effect at that date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(h) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the valuation of accounts receivable, useful lives of capital assets for amortization, the estimate of liabilities and contingencies, and the assumptions with respect to post-employment benefits. Actual results could differ from those estimates.

(i) Future accounting changes:

The CICA, in conjunction with the Accounting Standards Board ("AcSB"), has issued Part III – Accounting Standards for Not-for-Profit Organizations ("Part III") of the CICA handbook. Part III is effective for fiscal years commencing on or after January 1, 2012 and provides Canadian private sector not-for-profit organizations with a new financial reporting framework.

The Commission has elected to adopt Part III effective April 1, 2012, and is evaluating the impact of adopting the new accounting standards for not-for-profit organizations.

3. Related parties:

(a) Contracting Parties:

During the year ended March 31, 2012, the Commission received operating contributions from the Contracting Parties totaling \$3,759,272 (2011 - \$3,572,062). The Commission received nil (2011 - \$362,190) of operating contributions from the Government of the United States of America relating to future periods.

The Commission received \$887,000 (2011 - \$1,141,178) of contributions from the Government of Canada for Salmon Test Fisheries activities and fisheries management, which has been recorded in the general fund. Under the terms of the agreement any unspent funds must be repaid to the Government of Canada. The unspent amount of \$508,228 (2011 - \$513,537) has been recorded within accounts payable.

The office and warehouse premises of the Commission are provided by the Government of Canada at no charge.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

3. Related parties (continued):

- (b) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts"):

During the fiscal year ended March 31, 2012, the Commission received funding for projects from the Trusts totaling \$2,356,410 (2011 - \$2,565,530). As at March 31, 2012, the Commission had a payable to the Trusts of \$62,239 (2011 - \$157,578 receivable).

- (c) The Yukon River Restoration and Enhancement Fund (the "Fund"):

The Commission is related to the Fund due to the management services provided by the Commission. During the year, the Fund paid \$65,213 to the Commission for administrative services. As at March 31, 2012, the Commission had a receivable from the Fund of \$121,697 (2011 - nil), representing a reimbursement for expenses paid by the Commission on behalf of the Fund.

4. Capital assets:

2012	Cost	Accumulated amortization	Net book value
Automobiles	\$ 226,544	\$ 201,077	\$ 25,467
Boats	134,820	121,580	13,240
Computer equipment	744,250	666,916	77,334
Computer software	209,063	201,756	7,307
Equipment	1,438,302	1,238,608	199,694
Furniture and fixtures	306,429	292,139	14,290
Leasehold improvements	133,519	93,682	39,837
	\$ 3,192,927	\$ 2,815,758	\$ 377,169

2011	Cost	Accumulated amortization	Net book value
Automobiles	\$ 226,544	\$ 179,218	\$ 47,326
Boats	134,688	124,504	10,184
Computer equipment	754,765	667,757	87,008
Computer software	206,349	194,977	11,372
Equipment	1,328,029	1,188,497	139,532
Furniture and fixtures	308,331	287,719	20,612
Leasehold improvements	133,519	85,993	47,526
	\$ 3,092,225	\$ 2,728,665	\$ 363,560

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

5. Employee future benefits:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions, a multi-employer defined benefit plan, with Headquarters in Canada. The plan covers 68 employees, of which 40 are current or past employees of the Commission.

The Commission also provides employee future benefits including severance, life insurance and medical benefits.

The Commission's liabilities are based on an actuarial valuation using an early measurement date of January 1, 2012.

	Pension plan		Severance, life insurance and medical benefits	
	2012	2011	2012	2011
Reconciliation of accrued benefit obligation:				
Opening fair value of accrued benefit obligation	\$ (10,461,000)	\$ (9,054,000)	\$ (772,200)	\$ (654,200)
Current service cost	(386,034)	(357,625)	(41,800)	(35,600)
Benefits paid	533,291	259,460	60,288	9,269
Interest cost	(518,439)	(529,068)	(38,409)	(39,054)
Actuarial loss	(954,818)	(779,767)	(16,479)	(52,615)
Ending fair value of accrued benefit obligation	\$ (11,787,000)	\$ (10,461,000)	\$ (808,600)	\$ (772,200)

	Pension plan		Severance, life insurance and medical benefits	
	2012	2011	2012	2011
Reconciliation of plan assets:				
Opening fair value of plan assets	\$ 7,524,608	\$ 6,651,452	\$ -	\$ -
Expected return on plan assets	520,285	479,198	-	-
Employer contributions	247,614	470,472	60,288	9,269
Employee contributions	101,734	100,925	-	-
Benefits paid	(533,291)	(259,460)	(60,288)	(9,269)
Actuarial gain (loss)	(591,387)	82,021	-	-
Ending fair value of plan assets	\$ 7,269,563	\$ 7,524,608	\$ -	\$ -
Net unfunded obligation	\$ (4,517,437)	\$ (2,936,392)	\$ (808,600)	\$ (772,200)
Unamortized transitional adjustment	(23,603)	(6,719)	-	-
Unamortized past service costs	-	-	3,168	3,412
Unamortized net actuarial loss	4,584,905	3,158,844	244,158	239,253
Accrued benefit asset (liability)	\$ 43,865	\$ 215,733	\$ (561,274)	\$ (529,535)

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

5. Employee future benefits (continued):

The significant actuarial assumptions adopted in measuring the Commission's accrued pension benefit liability are as follows:

	2012	2011
Discount rate	4.4%	4.9%
Expected long-term rate of return on plan assets	7.0%	7.0%
Rate of compensation increase	3.0%	3.5%

The plan asset portfolio currently comprises equity investments and debt. Equity investments are 56.56% (2011 - 59.79%) of the portfolio and include Canadian and International investments. Debt is 43.44% (2011 - 40.21%) of the portfolio and comprises short-term debt, bonds and mortgages. The asset mix is reviewed periodically and may vary in the future.

The Commission's net benefit plan expense is as follows:

	2012	2011
Current service cost, net	\$ 326,100	\$ 292,300
Interest cost	556,848	568,122
Expected return on plan assets	(520,285)	(479,198)
Amortization of transitional obligation	16,884	16,884
Amortization of past service cost	244	244
Amortization of net actuarial loss	131,718	151,830
Net benefit plan expense	\$ 511,509	\$ 550,182

The net benefit plan expense is included in salaries and employee benefits on the statement of operations and fund balances.

6. General fund balance:

The Commission has approved a carryover of the unexpended funds in the general fund to be utilized as follows:

	2012	2011
Continuing operations	\$ 282,524	\$ 39,832
Reserve for prepaid expenses	29,537	32,051
	\$ 312,061	\$ 71,883

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

7. Trust funds:

The Commission administers and holds in trust the following funds which are not included in the Commission's financial statements:

(a) Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Northern Boundary") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Northern Boundary is a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Northern Enhancement Committee.

(b) Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund:

Southern Boundary and Transboundary River Restoration and Enhancement Trust Fund ("Southern Boundary") was created by the Governments of the United States of America and Canada to manage their interests in the Commission to promote cooperation in the management, research and enhancement of Pacific Salmon stocks. The Southern Boundary is defined as a non-taxable organization under the Foreign Missions and International Organizations Act (1991) and is not subject to income tax. The income earned on these contributions is distributed by the Commission as directed by the Southern Enhancement Committee.

(c) Payroll Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States to distribute U.S. section salary under a Memorandum of Understanding. These amounts have been excluded from the statement of financial position and statement of operations and fund balances of the Commission.

(d) U.S. Expenditures Trust Funds:

The Commission administers and holds trust funds on behalf of the Government of the United States of America. They are to be expended at the direction of the Government of the United States of America. These amounts have been excluded from the statements of financial position and statement of operations and fund balances of the Commission.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

7. Trust Funds (continued):

(e) Summary of trust fund balances:

	Northern Boundary	Southern Boundary	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	2012 Total	2011 Total
Assets	\$ 105,757,427	\$ 86,862,097	\$ 322,400	\$ 220,763	\$ 657,762	\$ 193,820,449	\$ 188,787,651
Liabilities	\$ 115,948	\$ 71,363	\$ 124,372	\$ 220,763	\$ 657,762	\$ 1,190,208	\$ 772,386
Fund balances	105,642,479	86,790,734	198,028	-	-	192,631,241	188,015,265
	\$ 105,758,427	\$ 86,862,097	\$ 322,400	\$ 220,763	\$ 657,762	\$ 193,821,449	\$ 188,787,651

	Northern Boundary	Southern Boundary	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	2012 Total	2011 Total
Fund balance, beginning of year	\$ 103,260,895	\$ 84,754,370	\$ -	\$ -	\$ -	\$ 188,015,265	\$ 183,431,082
Revenue	5,985,106	4,947,560	1,192,017	-	-	12,124,763	14,907,596
Expenses	3,603,602	2,911,196	933,989	-	-	7,508,787	10,323,413
Fund balance, end of year	\$ 105,642,479	\$ 86,790,734	\$ 198,028	\$ -	\$ -	\$ 192,631,241	\$ 188,015,265

Cash flow provided by (used in):

	Northern Boundary	Southern Boundary	Yukon River Fund	US Payroll Trust Funds	US Expenditure Trust Funds	2012 Total	2011 Total
Operations	\$ (3,718,710)	\$ (3,124,566)	\$ (322,330)	\$ -	\$ -	\$ (7,165,606)	\$ (8,109,688)

8. Capital management:

The Commission receives its principal source of capital through contributions received from the Contracting Parties. The Commission defines capital to be net assets.

The Commission's objective when managing capital is to fund its operational requirements and capital asset additions. The Commission makes adjustments to expenditures based on available government funding and economic conditions. Currently the Commission's strategy is to monitor expenditures to preserve capital in accordance with available and budgeted funding.

The Commission is not subject to debt covenants or any other capital restrictions with respect to operating funding. Funding received for designated purposes must be used for the purpose outlined in the Treaty, Bylaws, budget, and funding instructions. The Commission has complied with the external restrictions on the funding provided.

PACIFIC SALMON COMMISSION

Notes to Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

9. Contractual obligations:

The Commission has entered into a number of project grant contracts as at March 31, 2012 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Commission is not liable until these conditions have been met.

The research project contractual obligations are \$572,947 (2011 - \$747,670) as at March 31, 2012.

10. Financial instruments:

(a) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and accounts receivable, the Commission's credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Commission is subject to any significant concentration of credit risk.

(b) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Commission manages liquidity risk by maintaining adequate cash and available credit facilities with its banking provider. The Commission monitors the cash flow to ensure a sufficient continuity of funding from the contracting parties.

(c) Interest rate risk:

The Commission is not exposed to significant interest risk as it does not have amounts payable that are charged interest.

11. Comparative figures:

Certain comparative figures have been reclassified to conform with the financial statement presentation adopted in the current year.

Combined Financial Statements of

**NORTHERN BOUNDARY AND
TRANSBOUNDARY RIVER RESTORATION
AND ENHANCEMENT TRUST FUND**

and

**SOUTHERN BOUNDARY RESTORATION
AND ENHANCEMENT TRUST FUND**

Year ended March 31, 2012



KPMG LLP
Chartered Accountants
Metrotower II
Suite 2400 - 4720 Kingsway
Burnaby BC V5H 4N2
Canada

Telephone (604) 527-3600
Fax (604) 527-3636
Internet www.kpmg.ca

INDEPENDENT AUDITORS' REPORT

To the Trustees of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary Restoration and Enhancement Trust Fund (the "Trustees")

We have audited the accompanying combined financial statements of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts"), which comprise the combined statement of financial position as at March 31, 2012, the combined statements of operations and fund balances and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Combined Financial Statements

Management is responsible for the preparation and fair presentation of these combined financial statements in accordance with the basis of accounting in note 2(a) to the combined financial statements: this includes determining that the basis of accounting is an acceptable basis for the preparation of these combined financial statements in the circumstances; and for such internal control as management determines is necessary to enable the preparation of combined financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these combined financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the combined financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combined financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the combined financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the combined financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the combined financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.



Opinion

In our opinion, the combined financial statements present fairly, in all material respects, the financial position of Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and Southern Boundary Restoration and Enhancement Trust Fund as at March 31, 2012 and its combined results of operations and its combined cash flows for the year then ended, in accordance with the basis of accounting in note 2(a) to the combined financial statements.

Restriction on Use

Without modifying our opinion, we draw attention to note 2(a) to the combined financial statements, which describes the basis of accounting. The combined financial statements are prepared for the Trusts to meet their reporting requirements.

Our report is intended solely for the Trustees, the Government of Canada and the Government of the United States of America and should not be used by any other parties or for any other purpose.

KPMG LLP

Chartered Accountants

September 24, 2012

Burnaby, Canada

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Combined Statement of Financial Position

(Expressed in Canadian dollars)

March 31, 2012, with comparative figures for 2011

	Northern Boundary	Southern Boundary	2012 Total	2011 Total
Assets				
Current assets:				
Cash and cash equivalents	\$ 65,099	\$ 485,568	\$ 550,667	\$ 1,142,761
Due from Pacific Salmon Commission (note 8)	-	94,587	94,587	-
Interest receivable	13,927	10,414	24,341	9,908
Short-term investments	2,750,000	1,250,000	4,000,000	2,500,000
	2,829,026	1,840,569	4,669,595	3,652,669
Investments (note 3)	102,929,401	85,021,528	187,950,929	184,730,342
	\$ 105,758,427	\$ 86,862,097	\$ 192,620,524	\$ 188,383,011

Liabilities and Fund Balance

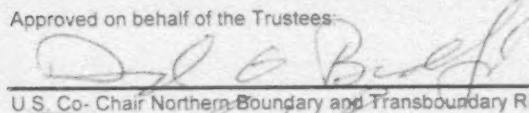
Current liabilities:				
Accounts payable and accrued liabilities	\$ 83,600	\$ 71,363	\$ 154,963	\$ 210,168
Due to Pacific Salmon Commission (note 8)	32,348	-	32,348	157,578
Fund balances	105,642,479	86,790,734	192,433,213	188,015,265
	\$ 105,758,427	\$ 86,862,097	\$ 192,620,524	\$ 188,383,011

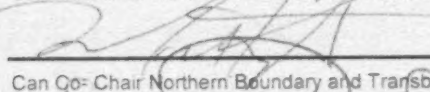
Contractual obligations (note 4)

Minimum fund balance (note 5)

See accompanying notes to combined financial statements.

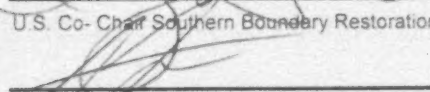
Approved on behalf of the Trustees:


U.S. Co-Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund


Can Co-Chair Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund


U.S. Co-Chair Southern Boundary Restoration and Enhancement Fund

**ANDREW J. L. THOMSON
AREA DIRECTOR,
SOUTH COAST AREA**


Can Co-Chair Southern Boundary Restoration and Enhancement Fund

**NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER
RESTORATION AND ENHANCEMENT TRUST FUND**

and

**SOUTHERN BOUNDARY RESTORATION AND
ENHANCEMENT TRUST FUND**

Combined Statement of Operations and Fund Balances

(Expressed in Canadian dollars)

Year ended March 31, 2012, with comparative figures for 2011

	Northern Boundary	Southern Boundary	2012 Total	2011 Total
Investment income	\$ 5,326,814	\$ 4,407,248	\$ 9,734,062	\$ 14,903,631
Interest income	30,792	14,984	45,776	3,965
	5,357,606	4,422,232	9,779,838	14,907,596
Foreign exchange gain (loss)	627,580	525,328	1,152,908	(2,397,989)
Expenses:				
Administrative services (note 6)	117,779	117,779	235,558	274,384
Travel and accommodation	29,855	14,635	44,490	22,110
Rents and communications	678	1,001	1,679	1,388
Contract services	23,394	35,163	58,557	43,321
Investment management services	461,108	400,606	861,714	1,036,101
Project grants	2,970,154	2,341,422	5,311,576	6,546,952
Materials and supplies	634	590	1,224	1,168
	3,603,602	2,911,196	6,514,798	7,925,424
Excess of revenue over expenses	2,381,584	2,036,364	4,417,948	4,584,183
Fund balances, beginning of year	103,260,895	84,754,370	188,015,265	183,431,082
Fund balances, end of year (note 5)	\$ 105,642,479	\$ 86,790,734	\$ 192,433,213	\$ 188,015,265

See accompanying notes to combined financial statements.

**NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER
RESTORATION AND ENHANCEMENT TRUST FUND**

and

**SOUTHERN BOUNDARY RESTORATION AND
ENHANCEMENT TRUST FUND**

Combined Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2012, with comparative figures for 2011

	Northern Boundary	Southern Boundary	2012 Total	2011 Total
Cash provided by (used in):				
Operations:				
Excess of revenue over expenses	\$ 2,381,584	\$ 2,036,364	\$ 4,417,948	\$ 4,584,183
Non-cash item:				
Unrealized loss (gain) on investments	3,194,987	2,623,253	5,818,240	(9,285,585)
Gain on sale of investments	(8,521,801)	(7,030,501)	(15,552,302)	(5,605,758)
(Gain) loss on foreign exchange	(677,875)	(559,832)	(1,237,707)	2,355,826
Change in non-cash operating working capital:				
Due from (to) Pacific Salmon Commission	(53,025)	(166,792)	(219,817)	164,664
Interest receivable	(6,030)	(8,403)	(14,433)	(9,758)
Accounts payable and accrued liabilities	(36,550)	(18,655)	(55,205)	35,045
	(3,718,710)	(3,124,566)	(6,843,276)	(7,761,383)
Investing:				
Proceeds from sale of short-term investments	2,000,000	500,000	2,500,000	-
Purchase of short-term investments	(2,750,000)	(1,250,000)	(4,000,000)	(2,500,000)
Proceeds from sale of investments	3,932,950	3,818,232	7,751,182	3,500,980
	3,182,950	3,068,232	6,251,182	1,000,980
Decrease in cash and cash equivalents	(535,760)	(56,334)	(592,094)	(6,760,403)
Cash and cash equivalents, beginning of year	600,859	541,902	1,142,761	7,903,164
Cash and cash equivalents, end of year	\$ 65,099	\$ 485,568	\$ 550,667	\$ 1,142,761

See accompanying notes to combined financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Notes to Combined Financial Statements
(Expressed in Canadian dollars)

Year ended March 31, 2012

1. Nature of organization:

The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund (the "Trusts") were created by the Governments of the United States of America and Canada (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific salmon stocks.

2. Significant accounting policies:

(a) Basis of presentation and accounting:

These financial statements have been prepared in accordance with the significant accounting policies set out below. These financial statements differ from Canadian generally accepted accounting principles as they are presented on a combined basis in order to reflect the common administration of the Trusts by the management of the Pacific Salmon Commission.

These combined financial statements present the financial position and results of operations of the Trusts in accordance with Canadian generally accepted accounting principles ("Canadian GAAP"), except as described in the preceding paragraph.

(b) Financial instruments:

The Trusts account for their financial instruments in accordance with Canadian Institute of Chartered Accountants ("CICA") Handbook Section 3855, *Financial Instruments - Recognition and Measurement*, and CICA Handbook Section 3861, *Financial Instruments - Disclosure and Presentation*, as permitted for not-for-profit organizations.

Under Handbook Section 3855, all financial instruments are classified into one of the following five categories: held for trading, held-to-maturity investments, loans and receivables, available-for-sale financial assets, or other financial liabilities. All financial instruments, including derivatives, are included on the statement of financial position and are measured at fair market value, with the exception of loans and receivables, investments held-to-maturity and other financial liabilities, which are measured at amortized cost. Measurement in subsequent periods depends on whether the financial instrument has been classified as held for trading, available-for-sale, held-to-maturity, loans and receivables, or other financial liabilities.

The Trusts' financial instruments include cash and cash equivalents, due from (to) Pacific Salmon Commission, interest receivable, investments, and accounts payable and accrued liabilities. The Trusts classify their cash and cash equivalents and investments as held for trading, with the financial assets measured initially at fair value, with transaction costs recognized immediately in the statement of operations.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Notes to Combined Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

2. Significant accounting policies (continued):

(b) Financial instruments (continued):

The Trusts classify their due from Pacific Salmon Commission and interest receivable as loans and receivables, which are recorded at amortized cost. The Trusts classify their accounts payable and accrued liabilities and due to Pacific Salmon Commission as other liabilities which are recorded at amortized cost, which approximates fair value due to their short terms to maturity.

(c) Cash and cash equivalents:

Cash and cash equivalents are comprised of cash on hand and short term deposits with original maturities of three months or less.

(d) Revenue recognition:

The Trusts follow the deferral method of accounting for contributions. Accordingly, funding received for specific purposes is deferred and recognized as revenue in the period in which the related expenses are incurred, or the restrictions are met.

(e) Income taxes:

The Trusts are non-taxable organizations under the Foreign Missions and International Organizations Act (1991).

(f) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate in effect at the transaction dates. Monetary items and non-monetary assets that are carried at market value and are denominated in foreign currency at the year-end date are translated to equivalent Canadian amounts at the exchange rate in effect at the year-end date. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(g) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from these estimates.

**NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER
RESTORATION AND ENHANCEMENT TRUST FUND**
and
**SOUTHERN BOUNDARY RESTORATION AND
ENHANCEMENT TRUST FUND**

Notes to Combined Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

2. Significant accounting policies (continued):

(h) Contractual obligations:

Contractual obligations are funded in instalments and payments are due based on conditions included in the contract being satisfied. Expenses and liabilities are recognized in the financial statements as these conditions are met.

(i) Future accounting standards:

The CICA, in conjunction with the Accounting Standards Board ("AcSB"), has issued Part III - Accounting Standards for Not-for-Profit Organization ("Part III") of the CICA handbook. Part III is effective for fiscal years commencing on or after January 1, 2012 and provides Canadian private sector not-for profit organizations with a new financial reporting framework.

The Trusts have elected to adopt Part III effective April 1, 2012, and are evaluating the impact of adopting the new accounting standards for not-for-profit organizations.

3. Investments:

Investments consist of mutual funds under the supervision of an investment manager and custodian and consist of the following managed funds:

	Northern Boundary	Southern Boundary	2012 Total	2011 Total
International Equity Fund	\$ 16,847,480	\$ 13,916,307	\$ 30,763,787	\$ 34,652,192
US Equity Fund	31,739,007	26,217,095	57,956,102	54,358,055
Global Equity Fund	22,325,744	18,441,446	40,767,190	42,458,807
Canadian Bond	32,017,170	26,446,680	58,463,850	53,261,288
	\$ 102,929,401	\$ 85,021,528	\$ 187,950,929	\$ 184,730,342

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Notes to Combined Financial Statements (continued)
(Expressed in Canadian dollars)

Year ended March 31, 2012

4. Contractual obligations:

The Trusts have entered into a number of project grant contracts as at March 31, 2012 for the future funding of research projects to be completed subsequent to the year end.

These contractual obligations are funded in installments and payments are due based on conditions included in the contract being satisfied. As such, no liability has been accrued in the financial statements as the Trusts are not liable until these conditions have been met.

The research project contractual obligations of Northern Boundary are \$626,826 (2011 - \$787,159) and of the Southern Boundary are \$507,496 (2011 - \$505,634) as at March 31, 2012.

5. Minimum fund balances:

In line with Chapter IX – 'Financial Regulations' Section F of the Pacific Salmon Commission By-laws, the total expenditures of the Trusts should not exceed the total income from the Principal. The Principal was the amount provided at the point of constitution of the Trusts and was US \$74,837,400 from the Government of the United States of America and CAD \$250,000 from the Government of Canada in the Northern Boundary and US \$64,902,400 from the Government of the United States of America and CAD \$250,000 from the Government of Canada in the Southern Boundary. As at March 31, 2012, the Northern and Southern Funds were in excess of the minimum balances.

6. Administrative services:

The Pacific Salmon Commission ("Commission") charges fees for administrative services to the Trusts representing an allocation of Commission salaries and benefits expenses incurred on behalf of the Trusts.

7. Capital disclosures:

The Trusts' capital consists of their fund balances. The Trusts' objective when managing capital is to safeguard their assets and to ensure that adequate capital is managed for future requirements. The procedures in place to achieve these goals include establishing effective internal controls, the review and approval of annual budgets and ongoing review of interim financial statements by the board of Trustees.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

and

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Notes to Combined Financial Statements (continued)

(Expressed in Canadian dollars)

Year ended March 31, 2012

8. Related parties:

The Trusts' only related parties are the Commission and the Contracting Parties. During the fiscal year ended March 31, 2012, the Trusts' provided funding for projects totaling \$2,356,410 (2011 - \$2,807,915) to the Commission.

As at March 31, 2012, the Trusts have a payable to the Commission of \$32,348 and a receivable of \$94,587 (2011 - payable of \$157,578).

9. Financial instruments:

(a) Market/Currency risk:

The Fund is exposed to market and currency risk on its investments as a result of fluctuations in factors such as stock prices, interest rates, foreign exchange rates, and commodity prices. Management invests in a diverse investment portfolio, and engages a third party investment manager to mitigate the overall risk profile of its investments.

(b) Credit risk:

Credit risk is the risk that a third party to a financial instrument might fail to meet its obligations under the terms of the financial instrument. For cash and cash equivalents, investments, due from Pacific Salmon Commission, and interest receivable, the Trusts' credit risk is limited to the carrying value on the statement of financial position. Management does not believe that the Trusts are subject to any significant concentration of credit risk.

(c) Liquidity risk:

Liquidity risk is the risk that an entity will not be able to meet its obligations associated with financial liabilities.

The Trusts manage liquidity risk by maintaining adequate cash and investment revenues. The Trusts monitor the cash flows in to ensure that the fund balances are maintained at a sufficient level in line with the Treaty.

Appendices

Appendix A

Appointment of Officers for 2011/2012

Effective December 1, 2011 a new slate of officers for the Pacific Salmon Commission was identified as follows:

<u>OFFICE</u>	<u>COUNTRY</u>	<u>REPRESENTATIVE</u>
Commission Chair	U.S.	Phil Anderson
Commission Vice-Chair	Can	Sue Farlinger
Fraser River Panel Chair	U.S.	Kyle Adicks
Fraser River Panel Vice-Chair	Can	Barry Rosenberger
Northern Panel Chair	U.S.	Gordy Williams
Northern Panel Vice-Chair	Can.	Mel Kotyk
Southern Panel Chair	U.S.	John Long
Southern Panel Vice-Chair	Can.	Don Radford
Transboundary Panel Chair	U.S.	John Clark
Transboundary Panel Vice-Chair	Can.	Denis D'Amours
Stan. Comm. on F&A - Chair	U.S.	Ron Allen
Stan. Comm. on F&A - Vice-Chair	Can.	Paul Macgillivray
Stan. Comm. on Scientific Cooperation - Chair	U.S.	Dr. David Hankin
Stan. Comm. on Scientific Cooperation - Vice-Chair	Can.	Dr. Laura Richards
Technical Committee on Data Sharing - Co-Chair	U.S.	George Nandor
Technical Committee on Data Sharing - Co-Chair	Can.	Chuck Parken
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gary Graves
Fraser River Panel Technical Committee - Co-Chair	Can.	Ann-Marie Huang
Northern Boundary Technical Committee - Co-Chair	U.S.	Glen Oliver
Northern Boundary Technical Committee - Co-Chair	Can.	David Peacock
Transboundary Technical Committee - Co-Chair	U.S.	Scott Kelly
Transboundary Technical Committee - Co-Chair	Can.	Steve Smith
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Ron Josephson
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can.	Briar Young
Joint Chinook Interface Group Co-Chair	U.S.	Dave Bedford
Joint Chinook Interface Group Co-Chair	Can.	Gerry Kristianson
Joint Technical Committee on Chinook - Co-Chair	U.S.	John Carlile
Joint Technical Committee on Chinook - Co-Chair	Can.	Chuck Parken
Joint Technical Committee on Coho - Co-Chair	U.S.	Gary Morishima
Joint Technical Committee on Coho - Co-Chair	Can.	Dr. Arlene Tompkins
Joint Technical Committee on Chum - Co-Chair	U.S.	Kit Rawson
Joint Technical Committee on Chum - Co-Chair	Can.	Pieter Van Will
Joint Technical Committee on Habitat and Restoration	U.S.	Thom Hooper
Joint Technical Committee on Habitat and Restoration	Can.	Melody Farrell
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Gary Morishima
Selective Fishery Evaluation Committee - Co-Chair	Can.	Dr. Gayle Brown

Appendix B

Approved Budget FY 2012/2013

	CS
1 INCOME	
A. Contribution from Canada	\$1,879,636
B. Contribution from U.S.	\$1,879,636
Sub total	\$3,759,272
C. Carry-over from 2011/2012	\$89,768
D. Interest	\$15,000
E. Other income	\$0
F. Total Income	\$3,864,040
2 EXPENDITURES	
A. 1. Permanent Salaries and Benefits	\$2,614,278
2. Temporary Salaries and Benefits	\$268,210
3. Total Salaries and Benefits	\$2,882,488
B. Travel	\$125,286
C. Rents, Communications, Utilities	\$143,424
D. Printing and Publications	\$13,800
E. Contractual Services	\$544,915
F. Supplies and Materials	\$51,528
	\$878,954
G. Equipment	\$102,599
H. Total Expenditures	\$3,864,041
3 BALANCE (DEFICIT)	(\$0)

Appendix C

Updated Terms of Reference for the Committee on Scientific Cooperation

Note: this version was adopted by PSC on February 15, 2012. It replaces previous version adopted January, 2001:

Terms of Reference – Scientific Cooperation Committee

1. The Pacific Salmon Commission hereby establishes the Committee on Scientific Cooperation (Committee), as requested by the Parties in paragraph (d) of Attachment D to the 1999 Agreement between Canada and the United States relating to the Pacific Salmon Treaty.
2. The Committee shall report to the Commission and periodically meet and consult with its technical committees as appropriate to carry out the Committee's function.
3. The Committee shall consist of four members, two appointed by each Party, and may adopt rules of procedure to govern its operations consistent with these Terms of Reference.
4. Committee members shall be from the scientific community, and have a background in salmon, a broad understanding of scientific processes and experience in addressing complex technical issues.
5. The Committee's mandate shall be to:
 - (a) assist, in consultation with the technical committees to the Commission, in advancing the scientific agenda of the Commission, identifying emerging issues and subjects for new or additional research and monitoring, and presenting scientific information to the Commission;
 - (b) monitor the progress of the Commission in assisting the Parties in enhancing cooperation and consultation on science pertinent to the Treaty such as timely data exchange, the development of common assessment models, and scientific and technical exchanges;
 - (c) provide support to the technical committees of the Commission as may be requested by Commission or its technical committees;
 - (d) undertake tasks assigned to it in the agreement on Habitat and Restoration when specifically requested to do so by the Commission;
 - (e) make recommendations to the Commission on enhancing scientific consultation and cooperation; and
 - (f) identify the need for and convene, lead and/or participate as may be requested by the Commission in bilateral scientific workshops supported by the Northern Fund Committee and/or the Southern Fund Committee established in Attachment C of the 1999 Agreement between Canada and the United States relating to the Pacific Salmon Treaty.

6. The Committee shall meet as a committee at least once annually concurrent with the Commission and as may be necessary to address specific tasks assigned to it by the Commission. At least once annually, the Committee shall present an oral or brief written report to the Commission addressing those matters identified in Paragraph 5 above and/or other matters as may be appropriate.
7. The costs of each Committee member, including fees for service, if any, should be borne by the Party appointing the Committee member.
8. Committee members will be appointed and serve at the discretion of the respective Party.

Appendix D

Northern Fund Projects for 2011/2012

Description	Proponent	Org	Area	CAN \$	2011 US \$
Ongoing Enhancement					
Snootli Hatchery Chinook Augmentation (Year 4 of 4)	Hilland	DFO	NBC	\$ 60,789	\$ 59,446
Lakelse Sockeye Recovery Program: Fry Outplant Project - Year 5	Miller	DFO	NBC	\$ 94,000	\$ 91,923
2011 Tatsamenie Lake Sockeye Fry Extended Rearing	Mercer	B. Mercer & Assoc	TBR	\$ 41,928	\$ 41,001
Trapper Lake sockeye Access Improvement - 2011 program year	Mercer	B. Mercer & Assoc	TBR	\$ 18,000	\$ 17,602
Determining the Trend of Chum Population Dynamics in Area 5 and Measuring the	Lemon	Oona River Resource Associa	NBC	\$ 27,546	\$ 26,937
Ongoing Habitat					
Lakelse Sockeye Recovery Program: Williams Creek Upper Spawning Channel	Miller	DFO	NBC	\$ 42,000	\$ 41,072
Ongoing Information					
Chickamin River Chinook Salmon Escapement Sampling	Johnson	ADFG	SEAK		\$ 105,560
Habitat-Based Chinook Escapement Goal Calibration: Clear rivers in northern BC	Winther	DFO	NBC	\$ 27,000	\$ 26,403
Forecasting Southeast Alaska pink salmon harvest from juvenile salmon data: extens	Orsi Sturdevan	NOAA	SEAK		\$ 49,760
Northern Boundary Area Sockeye Salmon Genetic Stock Identification for 2011	Guyon	NOAA	SEAK		\$ 201,500
Chinook Salmon stock identification using SNPs	Beacham	DFO	TBR, NBC	\$ 80,000	\$ 78,232
BC North Coast Lakes Hydroacoustic Survey - Year 3	Gottesfeld	Skeena Fisheries Commission	NBC	\$ 32,567	\$ 31,847
Stikine River Code Wire Tagging Augmentation, 2011	Etherton	DFO	NBC	\$ 67,400	\$ 65,910
Taku River Coho Salmon Escapement and Smolt Tagging Augmentation	Jones	ADFG	SEAK		\$ 75,010
Taku River Coho Salmon Escapement and Smolt Tagging Augmentation	Boyce	DFO	TBR	\$ 49,779	\$ 48,679
Genetic changes associated with in-basin supplementation of a population of sockeye	Smoker & Joy	UAF & NOAA	SEAK		\$ 120,000
Stock composition of Stikine and Taku inriver fisheries - sample collection	Boyce	DFO	TBR	\$ 44,297	\$ 43,318
Estimating the Chinook salmon stock composition of Southeast Alaska District 108 & Gik	Gilk	ADFG	SEAK		\$ 62,250
Northern and Transboundary sockeye matched scale-tissue sampling	Reynolds	ADFG	SEAK		\$ 188,596
Transboundary Chinook and Sockeye Salmon DNA Stock ID Baseline Sample Coll	Boyce	DFO	TBR	\$ 50,000	\$ 48,895
Morice Chinook CWT Group	O'Neill	Toboggan Creek Salmon and	NBC	\$ 63,000	\$ 61,608
Skeena River Recreational Chinook Creel Survey	Reagan	DFO	NBC	\$ 105,000	\$ 102,680
Johnston Coho Adult Mark Recovery Pilot Project	Stevenson	Rivers Smith Salmon Ecosyste	NBC	\$ 29,955	\$ 29,293
Tahltan lake sockeye egg take	Young	DFO	TBR	\$ 120,000	\$ 117,348
2011 Total				\$	1,734,870

Appendix E

Southern Fund Projects for 2011/2012

Description	Proponent	Org	Area	2011 \$ in US\$	Total 2011 Total \$ in US\$
Improved Information					
Goal 1 - Improve the Management of Fisheries Relevant to the Pacific Salmon Treaty					
Estimate Spawning Escapement, Juvenile Production, and Contribution to Fisheries of Coweeman River Fall Chinook Salm	Sharpe	WDFW	CR		103,158
WCVI Chinook AUC Index and Habitat-Based Escapement Goal Calibrations, British Columbia	Dobson	DFO	WCVI	217,350	
Coldwater River Resistivity Counter Calibration - Year 3 of 3	Sampson	Nicola Tribal Association	FR	30,534	
Calibration of Assessment Methods for Fraser Sockeye Spawning Populations Between 25K-75K	Benner	DFO	FR	75,400	
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase 1 and 2 (WDFW Component)	Packer	WDFW	PNW		71,662
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase 1 and 2 (DFO Component)	Tompkins	DFO	PNW		24,600
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase 1 and 2 (NWIFC Component)	Patton	NWIFC	PNW		8,561
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase 1 and 2 (ODFW Component)	Foster	ODFW	PNW		9,311
Update Coho FRAM Base Period for Mark-Selective Fishing Years (1998-2009), Phase 1 and 2 (USFWS Component)	Cook-Tabor	USFWS	PNW		11,015
Implementation of Stationary Sub-Sampling Systems to Estimate Salmon Passage in the Lower Fraser River	Xie	PSC	FR	141,042	
Improvements to Estimates of Daily Sockeye and Pink Salmon Abundance Migrating in the Fraser River:	Enzenhofer	DFO	FR	305,141	
Integration of Estimates from Two Sonar Sites, Mission and Qualark					
Goal 2 - Address Priority Stocks of Interest					
Collection of DNA Based Stock Composition Data from the WCVI Chinook Troll Fishery	Dobson	DFO	WCVI	72,600	
Goal 4 - Gain Better Understanding and Incorporate Ecosystem Factors into Underlying Science and Management Processes					
OSCURS for the 21st Century: Year 3 of 3	Thomson	DFO	PNW	84,704	
Habitat Restoration & Stock Enhancement					
Goal 2 - Address Priority Stocks of Interest					
Water Storage Feasibility on East Coast Vancouver Island	Craig	BCCF	GB	30,000	
Georgia Basin Salmonid Habitat Restoration Project	Wright	SeaChange Marine Conservatio	GB	50,336	
Cowichan River -Stoltz Bluff Remediation Monitoring	Wightman	BCCF	GB	30,000	
South Fork Nooksack Chinook captive brood implementation	Hatfield	WDFW	PS		67,336
DNA Sampling of Cultus Lake Sockeye in 2011	Latham	PSC	FR	11,466	
Riparian Corridor Establishment in the BC Interior	Harding	DFO	FR	35,000	
Salmon River Shuswap Lake Delta Fish Passage and Riparian Improvement Project	Harding	DFO	FR	40,000	
Englishman and Little Qualicum Estuary Restoration Pilots	Wightman	BCCF	GB	34,325	
Chilcotin River Coho Off-channel Project	Bennett	DFO	FR	35,000	
Restoring Interior Fraser Coho Habitat in the Coldwater River	Sampson	Nicola Tribal Association	FR	42,920	
Pilot Kelp Restoration Initiative - Cowichan Bay/Satellite Channel	Ayers	Cowichan Tribes	GB	12,828	
Total expenditures in US \$				\$ 1,544,289	

Appendix F

Pacific Salmon Commission Secretariat Staff as of March 31, 2012

EXECUTIVE OFFICE

Don Kowal
Executive Secretary

Teri Tarita
Records Administrator/Librarian

Vicki Ryall
Meeting Planner

Kimberly Bartlett
Secretary

Sandie Gibson
Information Technology Manager (Acting)

FINANCE & ADMINISTRATION

Kenneth N. Medlock
Controller

Bonnie Dalziel
Accountant

Angus Mackay
Manager
Restoration & Enhancement Funds

Victor Keong
Program Assistant
Restoration & Enhancement Funds

FISHERY MANAGEMENT

Mike Lapointe
Chief Biologist

Catherine Michielsens
Quantitative Scientist

Holly Anozie
Scale Lab Assistant

Merran Hague
Quantitative Biologist

Catherine Ball
Scale Lab Assistant (term)

Ian Guthrie
Head, Stock Identification Group

Jim Cave
Head, Stock Monitoring Group

Steve Latham
Stock Identification Biologist, Sockeye

Keith Forrest
Test Fishing Biologist

Bruce White
Stock Identification Biologist, Pinks

Yunbo Xie
Hydroacoustics Scientist

Maxine Forrest
Senior Scale Analyst

Fiona Martens
Senior Hydroacoustic Technician

Julie Sellars
Assistant Scale Analyst

Jacqueline Nelitz
Hydroacoustic Technician

Appendix G

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 2012

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Mr. Paul Macgillivray (Vice-Chair)
Ms. Lisa Kerr
Ms. Chantal Lamadeleine
Ms. Allison Webb
Ms. Heather Wood

Mr. W. Ron Allen(Chair)
Mr. David Bedford
Mr. Roy Elicker
Ms. Natalie Howard
Mr. Mike Matylewich
Ms. Cheryl Ryder

Staff

Mr. Don Kowal (ex. Officio)

2. EDITORIAL BOARD

Ms. Heather Wood

Ms. Cheryl Ryder

Staff

Mr. Don Kowal (ex. Officio)

3. FRASER PANEL

Mr. Barry Rosenberger (Vice-Chair)
Mr. Chris Ashton
Mr. Mike Griswold
Chief Ken Malloway
Mr. Rob Morley
Mr. John Murray

Mr. Kyle Adicks (Chair)
Mr. Robert F. Kehoe
Ms. Lorraine Loomis
Mr. Tim Tynan

FRASER RIVER PANEL - ALTERNATES

Mr. Brian Assu
Mr. Brent McCallum
Ms. Beth Pechter
Mr. Les Rombough
Mr. Peter Sakich
Mr. Marcel Shepert

Mr. Ronald G. Charles
Mr. Jack R. Giard
Ms. Peggy Mundy
Mr. Steve Thiesfeld

4. SOUTHERN PANEL

Mr. Andrew Thompson (Vice-Chair)
Dr. Don Hall
Mr. Paul Kershaw
Mr. John Legate
Mr. Jeremy Maynard
Ms. Laurie Milligan

Mr. John Long (Chair)
Ms. Susan Bishop
Mr. Burnie Bohn
Mr. Mark Newell
Mr. Joseph Oatman
Mr. Terry R. Williams

SOUTHERN PANEL - ALTERNATES

Mr. Rod Cootes
Mr. Les Jantz
Ms. Marilyn Scanlan
Mr. Errol Sam
Mr. Gordon Sterritt
Mr. Phil Young

Mr. Larry Carpenter
Mr. Edward Johnstone
Mr. Joseph C. Peters
Mr. Brad Thompson
Mr. Ron Warren

5. NORTHERN PANEL

Mr. Mel Kotyk (Vice-Chair)
Mr. Chris Barnes
Mr. Chris Cue
Mr. Bill de Greef
Mr. John McCulloch
Ms. Joy Thorkelson

Mr. Gordon Williams (Chair)
Mr. William F. Auger
Mr. Robert D. Mecum
Mr. Howard Pendell
Mr. Russell Thomas
Mr. Robert M. Thorstenson

NORTHERN PANEL - ALTERNATES

Mr. Dale Gueret
Mr. Rick Haugan
Mr. Greg Knox
Mr. Wilfred McKenzie
Chief Harry Nyce Sr.
Mr. Tom Protheroe

Mr. John Carle
Mr. Mitchell Eide
Mr. Arnold Enge
Mr. Brian Frenette
Dr. Peter Hagen
Mr. Dennis Longstreth

6. TRANSBOUNDARY PANEL

Dr. Denis D'Amours (Vice-Chair)
Ms. Cheri Frocklage
Ms. Louise Gordon
Ms. Jennifer Gould
Ms. Chris Kendel
Mr. Wolf Riedl
Ms. Linaya Workman

Dr. John H. Clark (Chair)
Mr. James Becker
Mr. Rod Brown
Mr. Arnold Enge
Mr. Gary Gray
Dr. Peter Hagen
Ms. Dale A. Kelley

7. STANDING COMMITTEE ON SCIENTIFIC COOPERATION

Dr. Laura Richards (Vice-Chair)
Mr. Mark Saunders

Dr. David Hankin (Chair)
Mr. Alex C. Wertheimer

8. NORTHERN FUND COMMITTEE

Mr. Mel Kotyk (Co-Chair)
Dr. Denis D'Amours
Mr. Ron Fowler

Mr. David Bedford (Co-Chair)
Mr. James E. Bacon
Mr. Robert Mecum

9. SOUTHERN FUND COMMITTEE

Mr. Don Radford (Co-Chair)
Dr. Don Hall
Mr. Mike Griswold

Mr. Larry Peck
Mr. McCoy Oatman
Mr. Larry Rutter

10. JOINT TECHNICAL COMMITTEE ON CHINOOK

Mr. Chuck Parken (Co-Chair)
Mr. Richard Bailey
Dr. Gayle Brown
Ms. Diana Dobson
Mr. Roger Dunlop
Ms. Dawn Lewis
Mr. Peter Nicklin
Ms. Teresa Ryan
Mr. Julian Sturhahn
Dr. Arlene Tompkins
Dr. Antonio Velez-Espino
Mr. Ivan Winther
Mr. Howie Wright

Mr. John Carlile (Co-Chair)
Dr. Marianna Alexandersdottir
Mr. David Bernard
Mr. Ryan Briscoe
Dr. John H. Clark
Mr. Ethan Clemons
Mr. Tim Dalton
Mr. Gary R. Freitag
Mr. Andrew Gray
Mr. Edgar Jones
Dr. Robert Kope
Mr. Larrie LaVoy
Ms. Marianne McClure
Mr. Scott McPherson
Dr. Gary S. Morishima
Ms. Kristen Ryding
Mr. Rishi Sharma
Ms. Pattie Skannes
Mr. William Templin
Mr. Eric Volk
Dr. Ken Warheit
Mr. Alex C. Wertheimer
Mr. Henry J. Yuen

11. JOINT TECHNICAL COMMITTEE ON COHO

Dr. Arlene Tompkins (Co-Chair)
Mr. Steve Bailie
Mr. Michael Chamberlain
Mr. Joel Sawada

Dr. Gary S. Morishima (Co-Chair)
Ms. Carrie Cook-Tabor
Mr. Craig Foster
Mr. Robert A. Hayman
Mr. Jeff Haymes
Dr. Peter W. Lawson
Mr. James F. Packer
Mr. Bill Patton
Dr. Laurie Weitkamp
Ms. Mara Zimmerman

(Northern Coho)

Dr. John H. Clark
Ms. Michele Masuda
Mr. Leon D. Shaul

12. JOINT TECHNICAL COMMITTEE ON CHUM

Mr. Pieter Van Will (Co-Chair)
Mr. John R. Candy
Ms. Kim Charlie
Ms. Marla Maxwell
Mr. Joe Tadey

Mr. Kit Rawson (Co-Chair)
Ms. Rebecca Bernard
Ms. Amy Seiders
Ms. Maureen Small
Dr. Gary Winans

13. JOINT TECHNICAL COMMITTEE ON HABITAT AND RESTORATION

Ms. Melody Farrell (Co-Chair)
Mr. Matt Foy
Mr. Allen Gottesfeld
Mr. Howie Wright

Mr. Thom Hooper (Co-Chair)
Mr. Kim Jones
Mr. K Koski
Mr. Jeff Nichols
Mr. Kit Rawson
Mr. Phil Roger

14. TECHNICAL COMMITTEE ON DATA SHARING

Mr. Chuck Parken (Co-Chair)
Ms. Kathryn Fraser
Ms. Cheryl Lynch

Mr. George Nandor (Co-Chair)
Mr. P. Brodie Cox
Mr. Ron Josephson
Mr. Mike Matylewich
Dr. Gary S. Morishima
Mrs. Amy Seiders

Working Group on Data Standards

Ms. Kathryn Fraser
Ms. Brenda Ridgway

Mr. Timothy Frawley
Dr. H. Mark Engelking
Mr. Gilbert Lensegrav
Mr. George Nandor
Mr. Ken Phillipson

15. FRASER RIVER PANEL TECHNICAL COMMITTEE

Ms. Ann-Marie Huang (Co-Chair)
Ms. Sue Grant
Ms. Beth Pechter
Mr. Jamie Scroggie
Mr. Mike Staley
Mr. Timber Whitehouse

Mr. Gary Graves (Co-Chair)
Ms. Peggy Mundy
Mr. Steve Thiesfeld

16. NORTHERN BOUNDARY TECHNICAL COMMITTEE

Mr. David Peacock (Co-Chair)
Mr. Dana Atagi
Mr. Steve Cox-Rogers
Mr. Allen Gottesfeld
Mr. Peter Hall

Mr. Glen Oliver (Co-Chair)
Mr. William Heard
Ms. Michele Masuda
Mr. Bo Meredith
Mr. Andrew Piston
Ms. Anne Reynolds
Ms. Haixue Shen
Mr. Eric Volk
Mr. Scott Walker

17. SELECTIVE FISHERY EVALUATION COMMITTEE

Dr. Gayle Brown (Co-Chair)
Ms. Cheryl Lynch
Mr. Joel Sawada

Dr. Gary S. Morishima (Co-Chair)
Dr. Marianna Alexandersdottir
Mr. Shaun Clements
Ms. Carrie Cook-Tabor
Dr. Annette Hoffmann
Mr. Kirt Hughes
Mr. Ken Johnson
Mr. Ron Josephson
Mr. Mark Kimbel
Ms. Marianne McClure
Mr. George Nandor
Mr. Ron Olson
Ms. Laurie Peterson
Dr. Kristen Ryding
Mr. Rishi Sharma
Ms. Michelle A. Varney

18. TRANSBOUNDARY TECHNICAL COMMITTEE

Mr. Steve Smith (Co-Chair)
Mr. Ian Boyce
Mr. Sean Collins
Mr. Pete Etherton
Mr. Marc Labelle
Mr. Brian Mercer
Mr. Bill Waugh

Mr. Scott Kelley (Co-Chair)
Mr. Jim Andel
Ms. Sara Gilk
Ms. Kathleen A. Jensen
Mr. Edgar Jones
Mr. Kevin Monagle
Mr. Phil Richards
Mr. Troy Thynes
Mr. Gordon Woods

ENHANCEMENT SUB-COMMITTEE

Mr. Briar Young (Co-Chair)
Dr. Kim Hyatt

Mr. Ron Josephson (Co-Chair)
Mr. John Joyce
Mr. Eric Prestegard
Mr. Garold Pryor

19. JOINT CHINOOK INTERFACE GROUP

Mr. Gerry Kristianson (Co-Chair)
Mr. Ron Fowler
Chief Russ Jones
Mr. Chuck Parken

Mr. David Bedford (Co-Chair)
Mr. Phil Anderson
Mr. McCoy Oatman

20. NATIONAL CORRESPONDENTS

Ms. Heather Wood

Ms. Cheryl Ryder